Knight/Jacobs Joint Venture

SNS AE/CM

PROJECT PLANS

Environmental, Safety & Health Plan

SNS108010308PN0005R03

TABLE OF CONTENTS

ATTACHMENTS

ADDENDUMS

1.0 Project Safety Policy

The safety of all personnel is recognized as a primary concern to all participants involved in the construction of the Spallation Neutron Source (SNS). Unsafe conditions and unsafe behavior can result in injuries and deaths as well as impact schedules, cause financial losses, and damage professional reputations. As such, it is the goal of the SNS Construction Project (Project) that all Project participants plan, manage, and execute their respective operations with the ultimate goal of conducting their operations injury-free on a daily basis.

It is the responsibility of each Subcontractor to adhere to the requirements of this plan. Each Subcontractor shall incorporate safety into the planning of each task, assure the safety of their personnel, provide all safety devices necessary for their employees, establish a safe and drug-free work environment, and confirm that their equipment meets the applicable safety standards. Each Subcontractor is responsible for any actions of their personnel that may endanger or otherwise expose other participants to potential hazards on the project site.

The Integrated Safety Management System (ISMS) shall be used to achieve these goals. The ISMS is a practical approach to the prevention of accidents with an emphasis on line management responsibility for safety. A central premise is that work planning starts with a focus on the nature of the job to be performed and assessment of the hazards involved in each step. Through the use of self-assessment and feedback from the line organizations, continuous improvement in each Subcontractor's safety process is expected.

Project participants are required to supervise and direct the work, using their best management skills and technical expertise. The Subcontractor will be solely responsible for all construction means, methods, techniques, sequences and procedures. This includes all safety precautions and programs in connection with the work, as well as coordinating all portions of the work. Each lower-tier subcontractor is likewise required to be responsible for all safety precautions and programs in connection with the work under the Subcontractor's contractual agreement.

All personnel on the SNS Construction Project have stop work authority for any task that represents an eminent threat to safety. Only the Construction Manager can authorize a restart of the identified task, with the concurrence of the Safety Coordinator.

Each Subcontractor, of any tier, will submit a written safety program in compliance with the Project safety requirements for review. This safety program will meet or exceed all applicable Project safety requirements.

SNS AE/CM Project Manager

SNS AE/CM Deputy Project Manager/Construction Manager

2.0 Introduction

This Project has developed this plan for implementing the principles and functions of ISMS. The Construction Manager and each Subcontractor's line management shall share the common goal to eliminate injuries to all employees and the down time associated with accidents. The requirements of the Occupational Safety and Health Administration (OSHA), the Oak Ridge National Laboratory (ORNL), and this safety plan establish the requirements and minimum standards that the Safety and Health programs must meet or exceed.

In addition to setting minimum requirements and standards, this Plan promotes safety by facilitating on-site employee safety orientations and safety training and establishing a project-wide safety program designed to promote a safe work environment.

2.1 General Information

The objective of this plan is to emphasize that the protection of people and property is of paramount importance to the success of this project. To accomplish this objective the Project committed to the principles and functions of ISMS described in U.S. Department of Energy (DOE) Policy 450.4, Integrated Safety Management System (ISMS) and discussed in detail in Section 3.

Accident prevention is a continuing process, not a fixed program. The Project recognizes that Subcontractors may have their own specific safety requirements. It is, therefore, each subcontractor's responsibility to identify to the Project how their programs will comply with the guidelines set forth in this plan before beginning work on the project site.

While it is the responsibility of each individual to work safely, it is ultimately each Subcontractor's management's responsibility to see that all safety and health policies and practices are followed and enforced. Active participation by each subcontractor's personnel in construction safety and health programs established for the Project is mandatory. Each Subcontractor's line management must demonstrate to their employees complete support and continuing involvement in all safety, health, and insurance policies and efforts.

Failure to fully carry out the responsibility to work safely and participate in the safety and health programs can result in removal of individuals from the Project at the direction of the Construction Manager.

Safety is not to be compromised for production. Safety must be considered an integral part of the planning process. The Project's goal, along with the each subcontractor's goal, is to eliminate accidents. Each Subcontractor's line management is charged with the responsibility for developing, implementing, and enforcing the Safety and Health programs and policies established for the Project.

2.2 Subcontractor's Safety And Health Program

A written safety program must be submitted within five calendar days after award for review and approval by the Project.

Each Subcontractor will budget to establish and maintain a safety and health program that meets or exceeds the requirements contained in this Plan and the applicable sections of 29 Code of Federal Regulation (CFR) 1926.

Each Subcontractor is solely responsible for carrying out their safety and health program. Therefore, the Project requires that each Subcontractor designate a competent on-site employee to carry out this responsibility. Along with the Subcontractor's line managers, this employee is directly responsible for ensuring that the Subcontractor's program and employee actions comply with the minimum safety standards required by this document and the Work Smart Standards (WSS).

2.3 SNS Construction Project Safety Team

The AE/CM Project Manager (PM) has overall responsibility for safety on the Project and the responsibility to ensure that acceptable Subcontractors are selected and that all aspects of this safety plan are complied with.

The AE/CM Construction Manager (CM) has responsibility for safety on the project site. The CM will have a Construction Management Staff composed of Construction Engineer/Superintendents and Resident Engineer/Inspectors that will oversee the safe performance of the work.

The Project will have an Administrative Safety Coordinator (Safety Coordinator) on-site to maintain oversight over the effectiveness of each Subcontractor's implementation of their safety program and to serve as a resource to all parties. The Safety Coordinator will have full-time on-site staff that will conduct assessments of the effectiveness of both the individual Subcontractor's and the Project's safety performance. In addition, outside assessments of both the Project and the Subcontractors' safety programs will be conducted from time to time.

A qualified On-site Medical Provider, Emergency Medical Technician or higher professional certification/license, will set up and run an on-site medical facility to provide first aid support and respond to medical emergencies. The Controlled Insurance Program (CIP) administrative branch will handle details. Operation of the facility will be addressed in the CIP Program Plan.

2.4 Drug Free Work Environment

The ORNL is committed to providing a safe work place for the workers assigned to the Project, promoting high standards of employee health and fostering productivity that satisfies their quality expectations. Consistent with the intent and spirit of this commitment, the Project has established a substance abuse testing specification with the goal of maintaining a work environment that is free from the effects of illegal drug use and alcohol. The Project requires that anyone entering the project site will comply with the substance abuse testing requirements as outlined in the Drug Testing Policy in Section 12.

2.4.1 Contractual Requirements

Each Subcontractor must have and enforce a written Substance Abuse Program incorporating the testing requirements, terms, and conditions set forth in this specification. A copy of the substance abuse program must be submitted to the Project for approval within five days after receipt of award.

The substance abuse program must apply to the employees of the Subcontractor working on the project site. This includes workers, new hires, replacement workers, and supervisory personnel. No employee or prospective employee of a Subcontractor shall be permitted to work on the project site unless such employee has submitted to testing as required, and unless the results of such testing are negative as hereinafter defined. The Subcontractor must provide the SNS Team with a monthly summary report of substance abuse program compliance.

2.4.2 Testing Requirements

The Project requires:

- pre-engagement drug and alcohol testing,
- drug and alcohol testing for cause, and
- post-accident and post incident drug and alcohol testing.

2.5 Procedure For Site Access

The SNS Construction Site is a secured, closed construction site. Everyone on-site must have a valid driver's license and be able to speak English. Only those persons with a valid Project ID badge may enter the site, and only those workers enrolled in the Project may work on the site. Anyone else requesting access to the site is considered a visitor and must adhere to the following procedure.

ALL VISITORS MUST:

1. Complete the Visitors Log in legible handwriting.
2. Complete and sign the Spallation Neutron Source Visitor Waiver and Release form.
3. Declare the name of the person they are seeking to contact on the site and the nature of their visit.
4. Wear a hard hat and safety glasses. All Visitors will be issued a hard hat designating them as a VISITOR. Safety glasses may be borrowed from the Construction Manager. Visitors' hard hats and safety glasses must be signed out and returned to the source from which they were borrowed.
5. Be escorted. The visitor will not be allowed to enter the construction site until the person accepting responsibility for the visitor meets them or acknowledges responsibility for them.
6. If visiting the work area, a visitor must be wearing appropriate clothing and footwear as required in Sections 5.4.4 and 5.4.5 of this plan.

The Project member who makes first contact with a visitor will remind that visitor that they may not go into the work areas without an authorized escort. After the visitor's site contact acknowledges responsibility for the visitor, it is that site contact's duty to ensure their visitor's compliance to this procedure.

Subcontractor personnel, of any tier, who will perform work on their contract, are not visitors. They will not, under any circumstances, be issued visitors passes to access the site.

Personnel who do not agree to comply with this requirement shall not be allowed on-site. Those who have been granted access to the site under the terms of this requirement, but then do not comply with this requirement will be escorted off the site and will not be permitted to return.

Exceptions:

For the purpose of this section any client representative and/or Department of Energy employee associated with the engineering and construction activities of the Spallation Neutron Source that possesses a valid ORNL facilities badge and has met the other requirements set forth in the opening of this section will be deemed eligible for unescorted entrance to the site for observation purposes. All entering personnel shall be held accountable for their own actions while on the Project Site. Any of said employees that will be required to physically perform any task other

than observation shall be required to comply with the same entry protocols as the construction team members.

3.0 Integrated Safety Management System

The Project has adopted the ISMS by contract (DEAR Clause 970.5204-2) as the overarching philosophy and approach to integrate systematically safety into work activities. The ISMS is the formal, organized process whereby the SNS Project plans, performs, assesses, and improves safe conduct of work. The ISMS for the SNS Project is based on the fundamental principles and core functions discussed in DOE Policy, P 450.4.[1] Each subcontractor and its lower-tier subcontractor(s) are committed to these fundamental principles and functions through contractual agreement. The use and implementation of this plan is verified through the self-assessment and independent assessment processes.

The Project and its subcontractors are committed to ensuring the health and safety of workers and the public and to protecting the environment. All work will be performed safely and will adhere to all applicable laws and requirements. Integral to this being accomplished is the workers' commitment to work safely and to work to the requirements.

3.1 Principles of Integrated Safety Management System

The fundamental principles described in DOE P 450.4, which are discussed below, are incorporated into the SNS Project's processes to help ensure that facilities are adequately preserved, that work is conducted safely, and that suitable accident preventive and mitigative measures exist.

3.1.1 Worker and Line Management Responsibility for Safety

Line management is accountable for empowering workers with the training and authority necessary to establish and maintain safe operating methods commensurate with their assigned duties. Management expectations are clearly communicated to all personnel, personnel are empowered, their feedback is solicited, the tools necessary to accomplish the work safely are provided, and personnel are held accountable for their actions. Each individual, in turn, is responsible for his or her actions.

Line managers are responsible for training, motivating, and enabling their workers to understand and comply with the Project's commitment to safety, and for ensuring that work is accomplished within the authorization basis. Line managers are also responsible, by personal example and by involving their workers, for providing a working environment in which everyone is dedicated to meeting the commitment to safety.

[1] DOE P 450.4, *Safety Management System Policy*, October 15, 1996.

3.1.2 Clear Lines of Authority

The Project organizational structure focuses on management and worker involvement, and is centered on work planning and execution. Clear and unambiguous roles and lines of responsibility, authority, and accountability at all organizational levels must be established. Environmental, safety, and health (ES&H) responsibility will be integrated into the Project work activities, and interfaces for processes and organizations will be clearly established to provide for good understanding and communication.

3.1.3 Personnel Experience, Knowledge, and Skill

Each Subcontractor and its lower-tier subcontractor(s) must commit to using a workforce on the Project that has the ability to do work safely and efficiently. Each individual associated with the Project shall possess the experience, knowledge, skills, and abilities necessary to discharge his or her responsibilities. Line managers must ensure that their workers are competent to safely accomplish the work through the hiring and training processes. Line management must ensure that training and qualification requirements are flowed down to their personnel, and are responsible for their performance.

3.1.4 Balanced Priorities

The Project ensures a "safety first" culture by effectively allocating, training, and monitoring resources to ensure that work is performed safely. A "safety first" attitude is a must for all personnel. Stop work authority is given to each employee to use when he or she believes an activity is unsafe. Restart approval is given at the appropriate management level. Specific job tasks are planned with appropriate worker involvement, and the work plan is required to be followed to ensure safe operation and environmental compliance.

3.1.5 Work and Associated Hazards

Before work is performed, the associated hazards are evaluated and an agreed-upon set controls is established, which, if properly implemented, provides adequate assurance that the public, the workers, and the environment are protected from adverse consequences.

3.1.6 Administrative and Engineering Controls

Administrative controls and engineering controls are essential elements of the ISMS. Wherever feasible, engineered controls are designed into the Project, and administrative controls are used to supplement engineered controls as appropriate. These controls are established through the work planning process.

3.1.7 Authorization Agreement

The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon by the Project and DOE.

3.2 Core Functions Of Integrated Safety Management System

DOE P 450.4 and Under Secretary Grumbly's memorandum[2] describe the core functions of an ISMS. These five functions are not independent and not necessarily sequential. Rather, they are linked and interdependent such that outcomes during the accomplishment of one may affect others. In particular, identifying and implementing opportunities for improvement may arise at any stage of the work process. The following table identifies those systems that are currently in place which respond to the above core functions of ISMS. The below systems will be modified as the Project ISMS infrastructure is further developed.

ISMS Core Functions	Existing SNS Level Systems
Define the Scope of Work	• Work Smart Standards • Contract • AE/CM Project Management Plan • AE/CM Construction Management Plan • Title I Design Packages (TBD)* • Title II Construction Packages (TBD)
Identify and Analyze Hazards	• Work Smart Standards • Job Safety Analyses (TBD)
Develop and Implement Hazards Controls	• Work Smart Standards • AE/CM Construction Management Plan Responsibility Matrix • AE/CM Environmental, Safety, and Health Plan • ES&H Specific Procedures (TBD)
Perform Work Within Controls	• Subcontracts (TBD)
Provide Feedback and Continuous Improvement	• Self Assessments (TBD) • Performance Measures (TBD) • Lessons Learned Program (TBD) • Walkthroughs (TBD)

Table 1
ISMS Core Functions and SNS Systems

*TBD – To Be Developed

Each Subcontractor, lower-tier subcontractor(s), line management must commit to these core functions of integrated safety management in the manner described below.

3.2.1 Define the Scope of the Work

Defining the scope of work entails identifying and defining **all** the steps, each task and sub-task element, needed to complete a particular job safely. Defining the scope of work is a critical element of the safety management system, since it sets the stage for the scope and depth of hazard identification and analysis.

---

[2] Thomas P. Grumbly, *Protocol for Review and Approval of Documented Safety Management System Descriptions Associated With Defense Nuclear Facilities*

3.2.2 Identify and Analyze Hazards Associated with the Work

Hazard identification includes defining those hazards to workers or property expected to be encountered during the course of performing a particular task and those that are introduced from concurrent work tasks. A Job Safety Analysis (JSA) shall be performed for each task to address such hazards. There is also a potential that unexpected hazards may be encountered or the nature of the known hazards might change as work activities proceed. Should this occur the JSA shall be amended to incorporate the new conditions.

3.2.3 Develop and Implement Hazard Controls

The development and implementation of hazard controls includes identifying controls to prevent and mitigate hazards, establishing the safety envelope (what conditions require what response) and performing periodic hazard assessments.

3.2.4 Confirm Readiness and Perform Work Within Controls

Confirmation of readiness is an effort to verify that safety controls have been implemented before starting work. Performing work within controls entails adherence to work controls in a manner such that activities remain within the safety envelope. Readiness assessments are conducted at multiple levels from each worker assessing his readiness to start a task to that necessary to demonstrate Project readiness to the DOE and regulators.

3.2.5 Provide Feedback on Adequacy of Controls

Feedback and continuous improvement are based on the premise that all work activities can be planned, performed, assessed, and improved. Continuous improvement entails proactive focusing on problem prevention and performance improvement to prevent unsafe practices from occurring. The capability to prevent minor problems from becoming major risks or events relies heavily on feedback from workers; observations from those not directly involved with the work, and adequate metrics to assess trends in performance.

3.3 Roles and Responsibilities for Integrated Safety Management System Implementation

3.3.1 Senior Management

The Project Manager has the overall responsibility for assuring a safe workplace and for maintaining safe operations. The Project Manager approves all Project plans, ensures implementation by conveying to line management their responsibilities for integration of safety performance into all work activities, and confirms management responsibility for integration of safety performance into all work activities. The Project Manager also has responsibility for evaluating the progress and health of the ISMS and adjusting resources as necessary based on feedback of ISMS implementation. This promotes continuous improvement in safety performance, and communicates the importance to the Project success.

3.3.2 Line Organizations

The Construction Manager and Construction Engineer/Superintendent (CE/S), and each Subcontractor's Field Managers and Supervisors constitute the focus of "line manager responsibility" for the protection of workers, the public, and the environment within the ISMS framework for all work conducted by their assigned employees, on-site subcontractors, and visitors in their assigned operating facilities.

Line managers provide the primary operating interface for employees and visitors. Within the framework of the ISMS, they contribute to work planning, pre-job communication of hazards and controls, work monitoring, and evaluation of results.

Effective integration of support from ES&H professionals into line activities is essential to achieving excellence in ISMS. Line management is responsible for defining and providing an adequate level of subject matter expert support, either from its own staff, matrixed from the ES&H Offices, or from external sources, as appropriate for the particular line organization and ES&H discipline involved.

3.3.3 ES&H Organizations

As noted above, effective integration of ES&H into line activities is needed for success of the ISMS. The Safety Coordinator is responsible for providing overall policy and guidance on ES&H issues, and for working with the line organizations to make available necessary and agreed-upon input from ES&H professionals and other support. ES&H personnel are responsible for ensuring the standards, requirements, and ES&H policies are effectively translated into suitable controls for work activities.

3.3.4 Workers

All employees and on-site subcontractors are responsible for becoming knowledgeable of and maintaining awareness of the hazards associated with their work, for contributing to the formulation of hazard controls, and for conducting their work safely in accordance with those controls. They are encouraged to identify ES&H issues in their workplace, to work with their management to provide input for improvements and to resolve concerns, and to exercise stop-work authority in cases of imminent danger to health and safety of workers or the public, or threat to the environment.

4.0 Responsibilities

4.1 Subcontractor

4.1.1 Expectations

Each Subcontractor has the explicit responsibility to perform work in accordance with the WSS and this plan. Subcontractors' line managers are accountable for fulfilling the responsibilities listed in this section, in addition to compliance with their own company requirements and attending meetings to discuss or resolve safety issues. A Subcontractor with 40 or more total employees on-site must have a dedicated safety representative assigned to the site full time to carry out the duties described below. A Subcontractor's lower tier subcontractor of any tier with 40 or more total employees on-site must also have a dedicated safety representative assigned to the site full time to carry out the duties described below.

A Subcontractor, of any tier, with fewer than 40 combined total employees onsite must delegate these duties to an on-site supervisor (who will be referred to as a safety designee).

In situations mutually agreed upon, safety policies and requirements that overlap causing potential conflicts, the stricter safety requirement(s) will apply.

4.1.2 Definitions

Dedicated Safety Representative. A full time dedicated safety representative is an individual (1) scheduled to be onsite during work hours and (2) assigned to exclusively carry out safety-related duties. Specifically, the dedicated safety representative shall not have other responsibilities that may take his or her attention from the expected safety duties

Safety Designee. A safety designee is an individual who, in addition to other project-related duties, is responsible for performing safety-related duties.

4.1.3 On-Site Safety Representative or Designee

The qualifications of the dedicated safety representative or of the safety designee must be submitted for review and acceptance by the Project, prior to the assignment of this person to the project site. Acceptance shall depend upon:

- prior applicable construction experience,
- prior history of on-site safety functions, and
- safety training as outlined in Section 7 of this Plan.

Specific responsibilities of the safety designee or the dedicated safety representative include, but are not limited to, the following:

4.1.3.1 Employee safety orientation and training

- Conduct orientation sessions for employees new to the project site, prior to their beginning work.
- Participate in weekly toolbox safety meetings and assist field supervisors, as requested, with meetings.
- Conduct weekly supervisor safety meetings.
- Instruct supervisors on safety rules and regulations.
- Instruct employees in the proper use and care of personal protective equipment.
- Instruct employees concerning special procedures (e.g., lockout, excavation, confined space entry, etc.) as required by OSHA and this Plan.
- Conduct hazard communication training.
- Conduct respiratory training as required.
- Conduct emergency evacuation training.

4.1.3.2 Record keeping

- Complete OSHA, state, federal, company, and Project-specific reports.
- Complete Individual Accident/Incident Reports.
- Complete inspection reports.
- Maintain training documentation.

4.1.3.3 Safety standards, rules, and regulations enforcement

- Authority to stop work.
- Authority to take immediate corrective action.

- Implement, maintain, and update, as required, conditions and project site-specific safety policies and procedures.
- Interpret and implement site-specific safety policies and procedures.
- Demonstrate, by example, proper safety behavior.

4.1.3.4 First aid/medical treatment

- Ensure first aid supplies are adequate.
- Post the names and positions of all CPR/First Aid trained personnel who volunteer to have their training identified.
- Coordinate transportation of employees with minor injuries.

4.1.3.5 General responsibilities

- Keep the Subcontractor's Field Manager and Supervisors apprised of any safety-related problems that have or may develop.
- Conduct work area safety inspections and report on both positive and negative findings to the Subcontractor's Field Manager.
- Conduct investigations of all accidents and incidents and submit reports to the Subcontractor's Field Manager.
- Compile OSHA statistical information and report this information to the Subcontractor's Field Manager.

4.1.4 Field Managers or Supervisors

Each Subcontractor's Field Managers and Supervisors have the responsibility for overall training, control, and conduct of personnel on their crew. As first-line supervisors, their role in the safety and health program is crucial because they set standards by which their employees work.

The field supervisors' responsibilities include, but are not limited to, ensuring conduct of:

- task-specific safety training,
- daily safety inspections,
- safety sampling,
- Take 2 safety reviews before starting a task,
- toolbox safety meetings, and
- accident/incident investigations.

The Subcontractor's Field Manager or Supervisor is also responsible forwarding all safety inspection and incident reports and OSHA statistics to the Construction Manager.

4.2 Lower tier Subcontractor

All lower-tier subcontractors to each Subcontractor are responsible for complying with the safety requirements outlined by both this Plan and that of the Subcontractor, even though the requirements may be above and beyond the subcontractor's own safety policies and the WSS.

4.3 SNS Construction Project Safety Staff

The Project Safety Staff is responsible for generating and maintaining a high level of commitment for safe operations among all personnel assigned to the project site.

Responsibilities and duties of the project safety staff include, but are not limited to, the following:

- Participate in regular Project progress meeting with the Construction Manager and the ORNL SNS Project staff, report on the status of the safety management process and on project safety trends.
- Participate in meetings with the Construction Management team to maintain current knowledge of status and upcoming activities as well as to advise of safety issues requiring management assistance.
- Conduct safety surveys of Subcontractor's activities to observe safety performance and make appropriate recommendations.
- Review and communicate methods and procedures to foster the highest level of accident prevention performance possible. Provide such information to the safety representative or designee.

Conduct regular safety planning meetings with the Subcontractors at which time the Subcontractors will review in detail the work scheduled to be performed during the next 30 days. Such discussion will focus on the Subcontractor's identification of hazards, planned methods of eliminating or controlling such hazards and other issues pertinent to managing an ISMS.

- Disseminate manuals, reference, and technical material, safety bulletins, and posters, as appropriate.
- Review and evaluate safety-meeting minutes to ensure that quality safety meetings are held.
- Provide special consulting, training, as required or requested by the Subcontractor regarding problems and challenges that may arise on the Project.
- Conduct orientation sessions with each Subcontractor's dedicated safety representative/safety designee to review their understanding of their role in the success of the project safety management process.
- Review all Individual Accident/incident Reports to ensure the thoroughness of the Subcontractor's investigation/fact-finding and determine if additional information would be beneficial in establishing the causal factors contributing to the event. Conduct independent investigations as deemed necessary.
- Compile, follow-up, and maintain safety performance statistics for the Project. Communicate above information to the Construction Manager to ensure they are informed and involved in the safety performance reviews.
- Keep apprised of new regulations and developments to keep the safety policies and procedures current and effective.
- Administer the Project safety program.
- Maintain current knowledge of local, regional, and national safety; health and insurance issues; and development through participation industry and professional organizations such as ASSE, RIMS, AGC, ABC, and National Safety Council.

- Maintain ongoing liaison with public and regulatory agencies to assure effective communications and working relationships.
- Offer safety awareness training to employees currently assigned to this project, as necessary or required.

5.0 Safety and Health Procedures

The safety procedures established for the Project are based on anticipated work activities. Future work activities may require the development of additional safety procedures or clarification of existing policies and procedures.

It is the responsibility of each employee to work in a safe manner. However, it is ultimately the Subcontractor's line management's responsibility to see that all safety and health rules and practices are followed.

Safety is never to be sacrificed for production. The safety goal for this Project is to eliminate the actions that cause accidents or illness.

5.1 Housekeeping

Housekeeping is a general indicator of a Subcontractor's performance on-site, including safety performance. Each Subcontractor has the responsibility to maintain their area of operations, and those of their lower-tier subcontractors, in an orderly condition free of materials that could create slip/trip or fire hazards. All requirements of 29 CFR 1926.25 must be met. In addition, the Subcontractor's Supervisors shall ensure a daily walkdown of their work area is conducted, that any deficiencies are immediately corrected, and the condition of the site is reported to the Subcontractor's Field Manager.

5.2 Excavations and Trenching

Prior to beginning any excavation, digging, trenching, or drilling operation, the Subcontractor's Field Manager must ensure that all underground utilities have been located and verified by the responsible parties. The Subcontractor's Field Manager must also give 48 hours notice to the Construction Manager prior to excavating deeper than five feet. All WSS requirements concerning safe trenching practices must be met.

5.3 Material Handling and Storage

All materials and equipment in storage, laydown, staging, or work areas must be properly secured so that they are stable and secure against sliding or collapse. All materials storage and loading/unloading areas must be established a safe distance from walkways, aisles, and traffic areas to avoid personnel injury should materials slide or collapse.

Flammable, toxic, or other hazardous materials need to be stored in properly designated, well-ventilated areas. Such material is not permitted to be stored within 25 feet of the existing and occupied structures or active access/egress ways. The Construction Manager must approve storage areas for hazardous materials.

5.4 Personal Protective Equipment

All employees and visitors to the project site must use the protective equipment prescribed by this plan and the applicable JSA for each task. It is the intent to control or minimize exposures that will or could lead to illness or injury. Therefore, anyone who refuses to use the prescribed protective equipment or who willfully damages such equipment shall be subject to removal from the Project.

All personnel on the project construction site must adhere to the following policies.

5.4.1 Eye Protection

Basic Eye Protection -- Employees must wear ANSI Z87 approved safety glasses with sideshields 100% of the time while in the construction areas, including entering and leaving the site.

Contact Lenses -- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments might represent an additional hazard to contact lens wearers. Hazardous environments include, but are not limited to, those in which a respirator may be required or where welding is being performed.

While wearing respirators or welding, both the Subcontractor Field Manager and the employee's physician must approve the use of contact lenses. These approvals are to be documented and kept in the Subcontractor's file on site. Employees will adhere to the Project's basic eye protection policy.

Goggles -- If the task requires an employee to wear goggles, basic eye protection should not be worn since a good seal cannot be obtained.

Face Shield -- When Subcontractor's employees are exposed to flying particles, splashes, mists, etc., they must wear an approved face shield as well as basic eye protection (since a face shield provides only protection to the face and eyes from direct impact objects).

Welding Shield -- When welding, both basic eye protection and hard hats must be worn with a welding shield. This is to protect employees from popping hot slag when the shield is raised and from overhead work exposures. If welding goggles are worn basic eye protection is not required while welding.

5.4.2 Head Protection

- All construction work areas are considered "hard hat areas."
- Everyone, including delivery personnel, vendors, and visitors must wear approved hard hats while on the construction site. Hard hats are not required in construction parking lots, enclosed vehicles, and office trailers.
- Each Subcontractor's company names are to be on all hard hats that are issued to their employees.
- All visitors will wear a designated hard hat (pink).
- **Hard hats will be worn at all times while on the construction site, including entering and leaving the site.**

5.4.3 Hearing Protection

The safety representative or designee will monitor work areas to recognize and post high noise areas as required by 29 CFR 1926.52.

Once an area is posted, notify the Construction Manager.

5.4.4 Foot Protection

Everyone on the project site must wear leather ANSI Z41 protective work shoes or boots.

No one is permitted to wear sneakers (including ANSI approved sneakers), tennis shoes or athletic shoes of any type, sandals, high heels, or thongs on the project site.

5.4.5 Clothing

- Employees are to report to work properly attired. The Project's requirements include:
- Clothing in good repair. (Frayed or tattered clothing can be hazardous to employees and will not be permitted);
- No tank tops or sleeveless shirts. (Shirts must have at least 2" sleeves and tails be tucked in at all times);
- Long pants only. (No short pants, cutoffs, sweat pants, etc.);
- If working around moving machinery, no neckties, gauntlet type gloves and/or baggy, loose or ragged clothing;
- No loose, dangling jewelry. (Jewelry such as rings, watchbands, necklaces, earrings and the like can cause or contribute to accidents. Employees must be responsible for taking proper precautions);
- Shoulder length or longer hair must be tied back and put under the hard hat or worn in a hair net. (This will keep it from impeding vision, becoming entangled in machinery, or preventing the use of personal protective equipment).

5.4.6 Fall Protection

Each Subcontractor must provide appropriate 100 % fall protection for its employees working six feet or more above the work surface. This fall protection must comply with 29 CFR 1926 Subpart M. The Subcontractor's Field Manager must fully evaluate the work conditions and environmental factors (including seasonal weather changes) before selecting the appropriate fall protection system (active, passive or a combination of measures, as appropriate). Such evaluation is to be included in the JSA for the task.

5.4.6.1 Types of fall protection systems

- *Personal fall arrest system* is a means used to arrest an employee in a fall from a work level. It consists of an anchorage, connectors, and a body harness and will include a lanyard, deceleration device, lifeline, or a combination of these.
- *Positioning device system* allows an employee to be safely supported on an elevated vertical surface (such as a wall) and work with both hands free.
- *Warning line system* is a barrier erected to warn employees that they are approaching an unprotected edge. It also designates an area in which work may not take place without the use of a guardrail, personal fall arrest system, or a safety net to protect employees.
- *Guardrail system* is a barrier erected to prevent employees from falling to lower levels. All guardrails must meet the requirements of 29 CFR 1926.502
- *Controlled access zone* is an area in which certain work (e.g., overhead brick laying) may not take place without the use of guardrail, personal fall arrest or safety net systems and access to the zone is controlled.

- *Safety monitoring system* is a system in which a competent person is responsible for recognizing and warning employees of fall hazards.
- *Safety net system* can be used when workplaces are more than 25 feet above the ground, water surface or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or a safety harness is impractical.

5.4.6.2 Safety harness

- The only permissible personal fall arrest system on this Project is an industry approved full-body safety harness. Employees can use positioning belts with two-D ring attachment points as long as they are used in conjunction with a safety harness.
- Safety harnesses must be secured to an overhead object of substantial capacity capable of supporting five thousand pounds (e.g. pipe, structure, cable, or rope lifeline). In order to accomplish this and ensure 100% protection, the employee may need to use two lanyards. The primary lanyard is never unhooked until the secondary lanyard is secure.

5.4.6.3 Lanyards and lifelines

- The type of work as well as the environmental conditions determines lanyard and lifeline selection. If lanyards, connectors, or lifelines may be damaged by welding, chemical cleaning, sandblasting, etc., either protect the components or use a more appropriate type of securing system.
- Lanyards and lifelines must incorporate or be used with an appropriate deceleration device. Deceleration devices include rope grabs, rip-stitch lanyards, specially woven lanyards, tearing, or deforming lanyards, automatic self-retracting lifelines, and lanyard, etc., which dissipate or otherwise limit the energy imposed on an employee during fall arrest.
- Once in use, the system's effectiveness is to be monitored. In some cases, a program for cleaning and maintaining the system may be necessary.
- Lanyards and lifelines must only use locking snap hooks.
- Under no circumstances may two lanyard snap hooks be connected together.

NOTE: 100% personal fall protection is required for steel erection.

5.5 Scaffolding

All scaffolds and platforms must meet the following requirements:

5.5.1 General Requirements

OSHA requires that scaffolds are to be erected, moved, altered, and dismantled only under the supervision and direction of a qualified Competent Person experienced in scaffold erection and maintenance. The Competent Person is required to be on the same walking/working surface and within visual sighting distance of the employees erecting, moving, altering, or dismantling a scaffold. Furthermore, the competent person must be close enough to the scaffolding work to communicate orally with the employees. The scaffolding Competent Person shall not have other responsibilities that could take his or her attention from the scaffolding work.

Each working level or platform of scaffolds must be completely decked and have handrails, midrails, and toeboards installed. If for some reason, a platform or working level cannot be equipped with standard handrails or completely decked, safety harnesses must be worn and properly tied off in compliance with the established fall protection requirements.

Chain guardrails on scaffolding are not allowed.

Scaffolds that will be higher than 30 ft and a working load exceeding 50 lb ft^2 requires a licensed professional engineer to complete sealed and signed design drawings, including load calculations. Examples are scaffolds erected for plasterers, masons, or any other trades who routinely store material on the platform.

Contact the Construction Manager if any special scaffolding issues arise.

Scaffolds must be inspected prior to each shift and tagged for the workers. Tagging must designate the requirements of the user and the conditions of the scaffold. (see Sect. 5.5.4)

5.5.2 Rolling Scaffolds

No one is to ride on a rolling scaffold while it is being moved.

All materials and tools must be secured prior to moving a rolling scaffold.

No rolling scaffolds will be utilized to support other scaffolds.

5.5.3 Scaffold Planking

Paint or stamp scaffold planks within 12" of each end or edge to denote use for scaffold decking only.

Use only 2" × 10" or 2" × 12" scaffold grade material for scaffold planking.

5.5.4 Scaffold Tagging

The scaffold tagging procedures are as follows:

- The crew that erects the scaffold must complete and attach the appropriate scaffold tag.
- The scaffold tag must be placed at eye level on or near the access ladder so it is easy to locate and plainly visible.
- A Competent Person needs to ensure that the scaffold is erected properly and the tag attached is proper and completely filled out.
- If the scaffold needs to be altered in any way, the person who signed the tag must be contacted to authorize the change and re-tag if necessary.
- An untagged scaffold must not be used.
- A Competent Person must inspect it prior to each shift.
- Tagging System procedure:
- A green tag is completed and attached by the erecting crew to scaffolds that have complete handrails, midrails, toeboards, and decking.

- A yellow tag is completed and attached to scaffolds that cannot be erected with all the components complete. The yellow tag allows the erecting crew to note what portion of the scaffold is incomplete and cautions the user. A yellow tag also informs the user fall protection is be required.
- A red tag means the scaffold is being dismantled, not yet completely erected or for some reason not safe and shall not be used.
- Under rare circumstances non-traditional scaffolding techniques may be required prior to installation. Attachment E shall be completed and submitted to the CM for approval.

5.6 Welding and Cutting

All welding and cutting (hot work) operations are required to have a hot work permit issued by the Subcontractor's Field Manager. Copies of the permit must be submitted to the Construction Manager. All hot work must be compliant with 29 CFR 1926 Subpart J.

5.7 Electrical

Subcontractors are required to pay particular attention to compliance with the requirements of 29 CFR 1926.416 through 29 CFR 1926.441, inclusive. Ground Fault Circuit Interrupters must be used with all electrical equipment using 240 Volts or less. All electrical cords and equipment shall be in good condition with all insulation and grounding connections intact. Only qualified electricians (licensed/journeyman) may perform electrical work on this Project.

5.7.1 Lockout/Tagout Procedure

Due to the scope of this job, the procedures used for energy isolation, be it electrical, mechanical, hydraulic, pneumatic or other types need to be both uniform and coordinated. Therefore, the following procedures have been adopted to make sure Subcontractors and employees are aware of, understand, and follow these lockout procedures and cooperate with other contractors who require a lockout that involves your work.

Note that the use of lockout energy isolation devices (padlocks) is required throughout this Project. Tagouts (simply tagging the switch, valve, etc.) will not be *allowed or* used on this Project.

5.7.1.1 Individual Lockout Procedure

This subsection is used in the event energy is either interrupted or restored unexpectedly. If interrupting or restoring energy unexpectedly could endanger an employee of any Subcontractor, refer to subsection 5.7.1.2.

- Following isolation of the energy source, lock the switch, valve, etc., using a padlock with only one key. Make sure the company's name is on the lock.
- Complete and place on the lock a standard lockout warning tag indicating what energy source was shutdown, the date of the shutdown, authorized employee's name, and company name.
- Complete and file on-site a lockout form.
- Prior to performing the planned work, verify successful isolation by attempting to operate the locked-out item or system.
- When energy is ready to be restored replace all missing guards. Ensure that no one will be endangered by energy restoration prior to removing the lock.

- After removing the lock, remove and properly destroy the warning tag. (Tags and their attachment devices are not to be reused unless designed for reuse).

5.7.1.2 Complex Lockout Procedure

This subsection must be used when one or more employee of another Subcontractor may be exposed to danger in the event energy is either interrupted or restored unexpectedly.

Only an authorized employee shall perform all of the following steps as the originator of a complex lockout. Every affected Subcontractor (including affected lower-tier subcontractors) is to have an authorized employee to coordinate the lockout for their company.

- Hold coordination meeting with all affected Subcontractors at least 24 hours in advance of the lockout. Also, inform Construction Manager 24 hours in advance. A member of Safety Coordinator Staff may wish to attend the meeting or monitor the actual lockout operations.
- Notify all affected employees of the lockout and the reason for it.
- Shutdown the affected equipment in a manner consistent with good operating practices. Have each affected Subcontractor do likewise.
- Verify that the equipment or system is inoperative by trying to operate it, etc. and have each affected Subcontractor do likewise.
- Shutdown the energy at the switch, valve, etc. that will be locked. Be absolutely certain the correct device or devices to shutdown and lock were located.
- Safely dissipate any stored energy in pressure lines, flywheels, capacitors, etc., consistent with good operating practices and, as necessary, have each affected Subcontractor do likewise.
- Place a multi-lock hasp device on the switch, valve, etc. that will be locked.
- Place a lock on the hasp using a padlock with only one key. Make sure the company's name is on the lock.
- Once the lock is on the hasp, have each affected Subcontractor's authorized employee place his or her own padlock on the hasp. Each lock is to be labeled with the name of their Subcontractor.
- Place all keys for all locks on the hasp in a locked group lockout box.
- As the originator of the lockout, the authorized employee of the original Subcontractor is to keep the key to the group lockout box.
- Complete and place on the lock a standard lockout warning tag indicating what energy source was shutdown, the date of the shutdown, authorized employee's name, and the company's name.
- Verify that the equipment or system is inoperative by trying to start it and have each affected Subcontractor do likewise. (Don't forget to turn all controls back to their off or neutral position).
- Complete and file on-site a lockout form.

- When energy is ready to be restored, replace all missing guards. Each affected Subcontractor then removes its own lock once it has determined that none of its employees will be endangered by energy restoration. As the originator of the lockout, the authorized employee will always remove their lock last. This is only after it has been determined that no one will be endangered by energy restoration.
- Restore energy.
- After removing the lock, remove and properly destroy the warning tag. (Tags and their attachment devices are not to be reused unless designed for reuse).

5.7.1.3 General information

- Padlocks, hasps, tags, and other lockout devices must be durable enough to withstand the environment to which they will be exposed.
- Locked-out switches, valves, etc. must not be operated regardless of the circumstances.
- Only the employee who placed the lock on the switch, valve, hasp, etc. can remove it. Anyone who removes or defeats another's lockout is subject to removal from the project site.
- Locked-out switches, valves, etc. must be inspected at the beginning of each shift to insure that the locks and tags are still in place.

5.8 Powder-Actuated Tools

Subcontractor using powder-actuated tools must ensure that all cartridges used, not used, or miss-fired have been picked up and removed from the work area. Only employees trained in the operation of a particular powder-actuated tool shall be allowed to operate them.

5.9 Steel Erection

Steel erection requires compliance with the following:

- **100% Personal fall protection is required for steel erection.** Subcontractor's employees must comply with the fall protection requirements covered in section 5.4.6.
- Conduct and document appropriate pre-task planning and job safety analysis for all steel erection. Keep this documentation onsite for review by the Construction Manager.
- If the Subcontractor determines that it wishes to use the "Christmas Treeing" method in its steel erection, it shall prepare for the Construction Manager's review a JSA of that activity and a separate **Safe Plan of Action** that describes the measures that will be employed to eliminate or mitigate the hazards arising from this practice. In using this method of erection the maximum number of pieces allowable in one pick will be limited to five.

5.10 Work Platforms Suspended From Cranes

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the work site, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or work site conditions.

A safety representative or designee must give the Construction Manager and Safety Staff reasonable notice prior to any operation requiring the use of personnel platforms suspended from a crane.

Prior to the use of a work platform suspended by a crane, the Subcontractor's General Superintendent will prepare a written record for each such operation and will maintain a file documenting its operation. Each record is good only for lifts made from a single crane set-up location. Traveling, repairs, or modifications of the crane will require a new record.

Each record is to:

- be initiated by the supervisor of the employee to be working from the platform;
- describe the work to be performed and its exact location;
- list all required inspections, certifications, tests, and pre-lift meetings;
- be signed by the crane operator, rigger, and initiating supervisor;
- note the name of the person who will flag or signal the crane operator;
- remain with the crane while the personnel hoist is in progress; and
- be available to the Construction Manager for review, upon reasonable notice.

5.11 Fire Prevention and Protection

It is the Subcontractor's responsibility to have the appropriate fire suppression equipment readily available and manned by employees trained in its proper operation. All fires (even those that have been extinguished) must be reported immediately to the Construction Manager. Immediately after use, the temporary fire fighting and fire protection equipment must be replaced or recharged. The Construction Manager must be notified immediately of any discharge of fire fighting equipment.

5.12 Job Safety Analysis

A Job Safety Analysis (JSA) shall be conducted on any and all tasks. The JSA shall identify the task and the steps necessary to complete the task, the hazards associated with each step of the task, and the means to protect the workers performing the task from those hazards. The workers performing a task shall briefly review the JSA for the task in a "Take 2" two minute safety review immediately before beginning the task. Should conditions change or unexpected hazards arise the JSA shall be amended to account for the new conditions and the workers rebriefed on the changes. The participation of workers who may be assigned to perform the tasks is strongly encouraged. An example of a typical JSA is illustrated on the following table.

Principal steps	Hazards	Controls
Vehicle Operations	Accidents	All operators must have valid licenses and certifications.
Excavation of 7 foot trench using backhoe or similar equipment	General physical hazards (manual lifting, slips, fall, contact with moving equipment, work near trench margin)	Take "2" to review tasks, hazards, and controls. Hard-hat, safety glasses, work boots, work clothes require. Establish a safety zone radius the length of the fully extended excavator arm. Only authorized and necessary personnel in the safety zone. Functional back-up alarm on excavator. Work gloves required for material handling. No one-person lifting over 55 pounds, proper lifting technique.

Principal steps	Hazards	Controls
	Trenching physical hazards	Identify soil type. No trench entry permitted by personnel without proper shoring, guarding, or slope construction. Soils stored 14 feet from trench edge.
Excavation of 7 foot trench using backhoe or similar equipment (continued)	Fire	Flammables stored in safety cans with flame arresters. Fire extinguisher ≥ 20AB 25 to 50 feet from outside flammables storage. Ignition sources prohibited in fuel storage or handling areas. Fuel storage areas must be marked with "No Smoking or Open Flame" signs. Bonding (metal to metal contact) during pouring. Gasoline powered equipment will be shut down during filling.
	Electrical shock	Maintain clearance from overhead and buried electrical utilities. Verify that no utilities have been installed in the immediate vicinity of the trenching. Notify CM of location and depth to dig.
	Exposure to chemicals	None anticipated. Wash face and hands prior to taking anything by mouth.
	Biological hazards	Notify On-site Medical Provider of any severe allergies to insect stings. PPE (boots, work clothes, taped pant legs). Insect repellant, as necessary.

5.13 Permits

5.13.1 Hot Work

Hot work is any temporary operation involving open flames or producing heat or sparks including but not limited to brazing, cutting, grinding, soldering, arc welding, and torch-applied roofing. People involved with hot work operations are expected to prevent fire losses from hot work ignition sources.

All hot work operations require use of Factory Mutual's Hot Work Permit (Form 2630). The permit is to function as an instructional guide and warning tag. The tag must be conspicuously displayed where the hot work is being performed and monitored.

Hot work taking place within 35 ft of the existing occupied structure requires approval of the Construction Manager.

5.13.2 Work Permit

Interim Life Safety Measures (ILSM) are a series of actions required to temporarily compensate for the significant hazards posed by construction activities. The implementation of ILSM is required in, or adjacent to, all construction areas.

Due to the serious nature of ILSM issues, any task required to take place within 35 ft of the existing, occupied structure, access, or egress route requires the use of a Work Permit. The permit is to function as an instructional guide and warning tag. The tag must be conspicuously displayed where the work is being performed and monitored.

The following work permits must be obtained when applicable and are to be addressed at the pre-construction meeting:

- Excavation/penetration
- Lockout/tagout
- Hot work
- High voltage electrical work permit and contractor overtag
- Confined space entry

The Construction Manager must be notified of all work requiring a Work Permit far enough in advance to comply with any and all ILSM requirements.

5.13.3 Confined Space

All individuals who enter confined spaces or supervise work within confined spaces will meet the requirements of OSHA. A confined space is defined as a space large enough and configured such that an employee can enter and perform assigned work, has limited access or egress for the removal of a suddenly disabled employee, and is not designed for continuous occupancy. Confined spaces may include, but are not limited to, storage tanks, process vessels, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, pipelines, and other open-top spaces deeper than 4 feet, such as pits, trenches, vaults and tanks. Any subcontractor that performs confined space entry must have in place a written confined space entry procedure, which must be available for review. As a minimum, this procedure must contain the following requirements.

Lines that may convey hazardous substances into the confined space will be disconnected, blinded, or blocked off by other positive means to prevent the development of hazardous atmosphere within the space.

The space will be emptied, flushed, ventilated, or otherwise purged of hazardous substances or asphyxiants to the extent feasible.

Lockout/Tagout procedures will be used as appropriate to secure sources of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

When entrance covers are removed, the entry point(s) to the spaces will be guarded with a standard railing (guardrail, midrail, and toeboard) to prevent an accidental fall and objects from entering the space.

The air will be tested to determine whether a hazardous atmosphere exists. Specifically, the following conditions will be monitored in the order given:

- oxygen content,
- flammable gasses and vapors, and
- potential toxic air contaminants.

A Confined Space Entry Permit will be completed and kept posted at the work site for the duration of the work.

5.13.4 Traffic Safety

Operation of motor vehicles on the SNS site must be conducted in a safe manner in conformance with the SNS traffic safety requirements and with all posted traffic signs, including speed limits, stop signs, yield signs, pedestrian crossings, traffic direction, no parking zones, etc. The driver must have a valid driver license, and all occupants of vehicles must use seat belts at all times. When driving off road, the driver will be instructed to drive slowly and exercise appropriate precautions. It is the responsibility of the motor vehicle operator to ensure that the vehicle occupants and pedestrians on the site are protected from vehicular accidents.

6.0 Orientation

All Project and Subcontractor line management will be required to attend the Project orientation provided by the Construction Manager before working at the SNS Construction Project. This shall include each Subcontractor's Owners and Officers.

Each Subcontractor's Field Manager shall ensure that their employees are briefed on what they can expect and what is expected of them on this project site.

Newly employed, promoted, and/or transferred personnel shall be fully instructed in the safety practices required by their assignments. All employees must receive orientation prior to starting work. Visitors must also receive orientation prior to leaving the office areas or be escorted while on the site. The initial indoctrination is to be performed by the Subcontractor's safety designee or dedicated safety representative. The orientation is required before an employee can receive a Project ID and enter the project site.

6.1 Scope

In addition to the Subcontractor's safety and health policies, the orientation must include:

- employee safety requirements and policies specific to the SNS Construction Project;
- site-specific safety and health requirements (found in Chap. 4 of this Plan);
- permitting procedures (if applicable), including work permits, hot work permits, etc.;
- hazard communication on a multi-employer work site;
- emergency and medical procedures; and
- other topics as circumstances require.

6.2 Documentation

All employees will complete an Orientation Acknowledgment form at the end of the orientation. A copy will be submitted to the Project in order for the employee to obtain an ID badge.

7.0 Safety Training

All personnel will be required to attend the Project orientation provided by the Construction Manager before working at the Project. This shall include each Subcontractor's Owners and Officers. This training shall be reviewed and approved by the Safety Coordinator or his/her designee.

7.1 Required Safety Training

7.1.1 Field Supervisors

First-line field supervisors will be required to complete the OSHA 10-hour Construction Safety and Health course if:

- A Subcontractor's contract award is in excess of 3 million dollars for construction or installation services on the site, or
- A Subcontractor has more than 25 employees on-site.

If supervisors have not attended this course within the past 12 months, they will be required to attend within **60 days of assignment to the Project**. The Construction Manager may also require supervisors to attend this training if safety observations indicate a supervisor would benefit from this course.

7.1.2 On-Site Safety Representatives

Under certain conditions, Subcontractors are required to have a full-time Safety Representative as required in Section 4. The individual is required to have 2 years or more of construction safety experience and comply with one of the following:

- hold a current CSP (Certified Safety Professional) designation, or
- hold a current CSHT (Certified Safety and Health Technician), or
- have completed the OSHA 30-hour Construction Safety and Health course within the past 24 months,
- or have completed the OSHA 500 course within the past 24 months.

7.1.3 Safety Designees

Under certain conditions, the Subcontractor is required to have a Safety Designee as required in Section 4. As a minimum this individual is required to have completed the OSHA 30-hour course within the past 24 months.

7.1.4 Meetings

7.1.4.1 Subcontractor meetings

Accident prevention will have a prominent place on the agenda, and the record of these meetings will reflect the specific items discussed. Attachment M shows an example of a Safety Meeting Record.

7.1.4.2 Toolbox training meetings

Each supervisor will hold weekly safety training meetings in their work area with their entire crew. Subject matter will cover specific safety procedures, lessons-learned, and safety issues pertinent to the crew's activity for the coming week. The meeting provides an opportunity to point out any hazardous conditions, or unsafe work practices that have been noticed. In addition, safety rules and regulations, safe-working procedures, analysis of accidents, and potential hazards will be discussed. Attendance and minutes of each ToolBox Safety Meeting will be documented and forwarded to the Construction Manager within 24 hours of the meeting.

7.1.4.3 Take 5 for safety meetings

At the beginning of each shift a brief safety meeting will be conducted to outline the day's tasks, reiterate the associated hazards and controls for those tasks, and share lessons learned from previous work.

7.2 Other Safety Training Available

Additional safety training may be made available through the Safety Coordinator. The Subcontractors can take advantage or may request additional training and/or training assistance by contacting the Safety Coordinator.

7.3 Aerial Lift Operator Training

The Aerial Lift Operator training requirement is designed to verify the competence of prospective Aerial Lift Operators employed by the Subcontractor. This verification applies to all operators using aerial lifts. Aerial lifts include, but are not limited to, extensible and articulating boom platforms, aerial ladders, vertical towers, and scissors lifts.

7.3.1 General Requirements

All Aerial Lift Operators must be trained in the safety operation of the equipment to which they are assigned by a designated Competent Person. Manufacturer's representatives are recognized as experts on their equipment and may be considered as Competent Persons.

The Subcontractor is required to submit to the SNS Team the training program to be used to comply with this requirement and provide a copy of the written exam to be used for approval.

Aerial lift training must include a written exam and skills demonstration. Only operators scoring 90% or above on the written exam and who successfully demonstrate, in the opinion of the competent person, the actual skills required to operate specific types of aerial lifts will be allowed to operate aerial lifts on the site.

The operator must be issued a card that must be kept on their person while operating an aerial lift or a hard hat sticker indicating successful completion of the training course. A copy of all issued cards or a roster of workers issued hard hat stickers must be provided to the SNS Team and made available upon request in the construction environment.

All operators must be re-certified annually.

7.3.2 Revocation of Aerial Lift Operator Status

Training certification cards or hard hat stickers may be revoked at any time for reasons determined by the SNS Construction Manager. Reasons for revocation of Aerial Lift Operator status might include the operator not following established safety practices or being involved in an accident.

7.4 Forklift Operator Training

This Forklift Operator training requirement is designed to verify the competence of prospective Forklift Operators employed by the Subcontractor. This verification applies to all employees who operate standard mobile forklifts; however, crane style forklifts, such as "sky lifts" may require additional training as determined by the designated Competent Person.

7.4.1 General Requirements

- All forklift operators must be trained in the safety operation of the equipment to which they are assigned by a designated Competent Person. Manufacturer's representatives are recognized as experts on their equipment and may be considered as Competent Persons.
- The Subcontractor is required to submit their training program to be used to comply with this requirement and provide a copy of the written exam to be used for approval.
- Forklift training must include a written exam and skills demonstration. Only operators scoring 90% or above on the written exam and who successfully demonstrate, in the opinion of the competent person, the actual skills required to operate specific types of forklifts will be allowed to operate forklifts on the site.
- The operator must be issued a card that must be kept on their person while operating a forklift and a hard hat sticker indicating successful completion of the training course. A copy of all issued cards or a roster of workers issued hard hat stickers must be provided to the SNS Team and made available upon request in the construction environment.
- All operators must be re-certified annually.

7.4.2 Revocation of Forklift Operator Status

Training certification cards or hard hat stickers may be revoked at any time for reasons determined by the Construction Manager. Examples of reasons for revocation of forklift operator status might include the operator not following established safety practices, involved in an accident, etc.

7.5 Crane Operator Certification

Only certified crane operators may operate cranes of any size or configuration on this project. The Subcontractor is required to provide copies of such certification for each operator assigned to the Project. The Construction Manager may direct the removal of an operator from the Project for reason. Examples of reasons a crane operator might be removed from the Project include an operator not following established safety practices, an operator involved in an accident, etc.

7.6 Guidelines for Safety Training Meetings

The foreman or supervisor is responsible for preparing and conducting Safety Training Meetings for employees **on a weekly basis**. Special Safety Meetings should be conducted as soon as possible when notified by the Construction Manager or Safety Coordinator of a serious accident, incident, or potential problem on-site. The Subcontractor's Field Manager will be notified with pertinent information concerning these incidents where a common hazard exists or information is necessitated.

These meetings are an essential element of the ISMS. It is a proven fact that projects that conduct good safety meetings experience fewer injuries than those that have poor or no safety meetings.

In order to assist in the preparation of material, and in presenting a safety-training meeting, the following guidelines are provided.

7.6.1 Preparing for the Meeting

- Select the topic for the meeting several days in advance so that you will have a chance to become familiar with the subject to be discussed. You should be able to present the talk in a convincing manner without reading it.
- The Construction Manager will set a time for all Safety Training Meetings. These meetings are generally 5 to 15 minutes in length so seating is not important. However, make sure everyone can easily see and hear you. A good time to hold the meeting is just after shift begins or immediately following the lunch break.
- Just prior to the meeting, gather all the material and/or equipment you need. When possible, use actual demonstrations to illustrate your points. For example, if you are talking about fire extinguishers, have one with you to show what it looks like and how it is used. Have a mushroomed tool head or a broken hammer handle to show how they can cause accidents. If necessary, get someone to help you.
- The entire crew, if possible, should be present before the meeting is started.

7.6.2 Conducting the Meeting

- Start on time. You may lose interest if unnecessary delays occur.
- Make the meeting short and to the point. However, if you get a good discussion going, use discretion about cutting it off too soon.
- Start the meeting by complimenting the men on some recent good work.
- Give the talk in your own words.
- Get your people to participate in the meeting. The purpose of these meetings is to get workers to think about safety problems. Encourage them to offer suggestions for improving safety in the work area or your craft.
- Maintain control. Do not allow the meeting to develop into a wasteful, time-consuming "bull session."

7.6.3 Other Items to Cover if Applicable

- Review any injury or near miss incident any crewmember had during the past week or a Special Safety Meeting topic identified by the Safety Coordinator. Include in the discussion what the incident was, how it happened, and how it could have been prevented and steps to be taken to prevent reoccurrence.
- Review safety findings noted during the past week. Indicate: the nature of the finding and any danger involved, and offer constructive criticism without naming anyone in particular.
- Review the work planned for the week ahead. As part of the review, discuss hazards to avoid or control, safety equipment to be used, and safe procedures to be followed.

7.6.4 Record Keeping Requirements

Each employee must sign the attendance sheet (Safety Meeting Record) at the conclusion of the meeting and the supervisor conducting the meeting must sign it. A copy of the Attendance Sheet must be forwarded to the Construction Manager. Make certain it is dated and that the crafts attending and the meeting location are listed.

Subjects discussed must be covered in detail. "General Safety" is not specific enough.

The Subcontractor's Field Manager should consult with the Construction Manager or Safety Coordinator to obtain the latest update to this material or to receive information. Safety meeting topics are available from the Construction Manager or Safety Coordinator.

7.7 Safety Reminders

The following basic safety requirements should be followed:

- All guards and covers should be replaced after adjustments or maintenance of equipment.
- Make sure handrails and walkways are in good repair and clear of tools, spare parts, and obstructions.
- Never adjust or lubricate equipment while it is operating.
- Stand clear of hauling equipment that is dumping material into a hopper or anywhere else.
- Always look around equipment before starting to make sure no one is near moving parts, making inspections, or adjustments.
- Do not drop material from walkways or ladders without barricading the area below or having someone standing by to keep other persons away from the danger area.
- Blocking that is used under and around equipment or structures must be of suitable material and properly placed to support the structure. The blocking must be periodically checked for signs of failure or shifting that could allow structure or equipment to fall.
- Only electricians should handle any kind of work on electrical equipment. Other workers must avoid touching any loose or misplaced electrical wires and consider them all dangerous.
- Mark all flammable materials, such as oils, greases, and gasoline. Store these materials in a posted incombustible building situated away from other structures. NO SMOKING while handling flammable material.
- Proper clothing while on the job is important. Wear proper work shoes/boots to protect your feet. Do not wear loosely hanging or torn clothing on the job. This type of clothing can get caught in moving parts of the equipment and generally hinders work. Wear gloves whenever possible. The use of hard hats and safety glasses or goggles is definite safety protective equipment and must be worn when required.
- Think safety! If you have and maintain an attitude of **Safety on the job**, then the chances of being injured are very greatly reduced. Point out hazards and instruct new employees on safety.

8.0 Record Keeping Requirements

8.1 Introduction

Proper documentation and record keeping of safety-related functions by the Subcontractors are essential. The purpose of recording keeping is to provide information that can be used to reduce the number and degree of occupational illnesses and injuries. Use of this information will allow appropriate steps to be taken to remove causes and work towards the elimination of future incidents.

All required documentation shall be maintained onsite, available for review by the Project upon request. The Subcontractor's project manager is responsible for ensuring that record keeping and related requirements, as outlined in this section, are accurate and up-to-date for both his firm and any lower-tier subcontractor.

There are several forms provided in this document that are to be used. If a Subcontractor prefers to use their own forms, they are to be submitted to the Construction Manager for review and acceptance. If they meet or exceed the data requirements of Attachment M of this Plan, they will be acceptable.

8.2 Posters

Each Subcontractor must post the Project Safety Alerts and Bulletins issued by the Construction Manager as well as the posters required by federal and state regulation in a conspicuous place. Required workers' compensation insurance posters are required to be posted by the Subcontractor.

8.3 Signs

The Construction Manager will provide the following appropriate signage for the Subcontractor's Field Manager to post, depending on the nature of their work and work area:

- Hard Hats and Safety Glasses Required Beyond This Point (posted at all entrances to the project site and work areas).
- Danger - Construction Area - Authorized Personnel Only (posted at all entrances to the project site).
- Drugs, Alcohol, Firearms and Related Paraphernalia are prohibited on the Project Site (posted at all entrances to the project site).

8.4 Completion and Filing of Records and Checklists

A copy of the following forms and reports can be found in the Attachment section of this plan. Copies may be made for use on this project.

8.4.1 Individual Accident/Incident Report

An Individual Accident/Incident Report must be completed for each near miss that does not result in injury or damage to equipment, as well as for each incident resulting in injury or damage to materials or equipment. A detailed copy is provided to the Project within 24 hours of the incident.

8.4.2 Weekly Tool Box Safety Meeting Report

The Weekly Tool Box Safety Meeting form is to be completed at the end of each week's meeting and a copy forwarded to the Construction Manager within 24 hours of the meeting.

8.4.3 Safety Audit Checklist

This checklist is to be completed monthly by the Subcontractor's safety representative or designee. The information will include, but is not limited to, total work hours for the month, number of accidents (recordable, non-recordable, first-aid, lost time), and near misses. Additional safety requirements implemented since the last report shall be included. A copy is sent to the Construction Manager.

8.4.4 Weekly Review of Work Site

Each Subcontractor's field supervisors are to complete this weekly review and forward to the Subcontractor's safety representative or designee who will compile the information and include it in their monthly safety audit checklist.

8.4.5 Safety Observations

The Project Safety Staff and CM staff will perform written safety observations of work activities that do not comply with the Project's safety policies and procedures. If a Subcontractor receives a safety observation, they shall immediately correct the hazard noted, document the corrective action, and return the report to Project Safety Staff within two working days.

8.4.6 Contractor Monthly Report of Work Injury and Illness Statistics

The Project Safety Staff will track injury and illness statistics by the Subcontractor. The AE/CM will report quarterly the total hours worked by craft.

8.4.7 Job Safety Analysis

The JSA is a tool used to identify jobs posing the greatest accident risk and to assist in task planning. The Subcontractor's field supervisor is required to complete a JSA and review the findings with their work crew. A copy of the JSA shall be made available to the Project Safety Coordinator upon request.

8.4.8 Daily Task List

The Subcontractor's Field Manager shall submit a list of all tasks to be performed at the beginning of each day to the Construction Manager. A copy shall be made available to the Project Safety Coordinator upon request.

9.0 Administrative Policies

9.1 Inspections

Scheduled and unscheduled inspections by DOE and ORNL compliance officers will take place. When a Subcontractor's Field Manager receives notification of an impending inspection, the Construction Manager shall be contacted so that a member of the Project Safety Staff can be present during the actual inspection. It is the policy of this Project Safety Program that all Project Participants fully cooperate with DOE and ORNL compliance officers.

9.2 Accident and Incident Investigations

9.2.1 Incidents

All incidents, involving illness/injury, property damage, or neither ("near miss"), must be immediately reported to the Construction Manager. This is to include repairable damage to equipment or materials and all but minor first aid cases. Such incidents must be investigated by the Subcontractor's safety representative or designee and documented on an Individual Accident/Incident Report. The report must be completed and submitted to the Construction Manager within 24 hours of the incident. The Project reserves the right to conduct an independent investigation of any incident.

9.2.2 Major Incidents

An incident investigation committee will investigate all major incidents. This includes, but is not limited to, any incident resulting in a medical case, lost-time injury, fatality, damage to property or equipment or a "near-miss" that could have resulted in such an incident. The committee will review the incident scene, interview all involved or witnessing parties, review all facts pertaining to the accident, and file a report of the findings and conclusions as well as recommended measures to prevent re-occurrence to the Construction Manager. The committee will be comprised of, but not limited to:

- the person(s) involved in the incident,
- the first-line supervisor of the person(s) involved in the incident,
- the superintendent of the employing Subcontractor,
- the safety representative or designee of the employing Subcontractor,
- the safety representative or designee of the Subcontractor, and
- the Project Safety Coordinator, or designee.

9.2.3 Special Investigations

Special investigations fall into areas such as potential third party litigation, non-Project personnel injury, equipment, or material failure, etc. that relate to the Project. The Project Safety Coordinator will coordinate all special investigations.

10.0 Hazardous Chemicals

10.1 Hazardous Materials and Hazardous Waste

- All Subcontractors will provide to the Construction Manager a list of hazardous materials that will be used on the project site. Update the SNS Team by sending amended list(s), as necessary.
- An U.S. Environmental Protection Agency (EPA) ID number shall be obtained for the hazardous wastes produced by the Subcontractors.
- All hazardous wastes produced by the Subcontractor must be removed from the project site by a licensed hazardous waste hauler. Such loads shall be manifested and a copy of the manifest sent to Construction Manager. All hazardous materials must be properly labeled and stored until removed from the project site (by a licensed hazardous waste hauler).
- Hazardous materials or hazardous wastes stored in 30-gallon or 55-gallon drums are to be placed on spill containment pads.
- Report all accidental releases of a hazardous material or hazardous waste promptly to the Construction Manager. If the release is of a reportable quantity, the responsible Subcontractor will notify the appropriate regulatory agency.
- The responsible Subcontractor will do proper cleanup of accidental releases of hazardous materials waste. Cleanup is to be done by properly trained personnel. Hazardous waste from the cleanup must be hauled away by a licensed hauler. The Construction Manager must be given a copy of the hauler's manifest.

- Depending on the hazardous materials spilled, the Construction Manager may require the responsible Subcontractor to hire a certified laboratory to take an appropriate number of soil samples to test at their laboratory. A copy of the results is to be given to the Construction Manager.
- Subcontractor must inspect their hazardous material and waste storage areas at least weekly to ensure they are properly maintained.
- The Subcontractor will randomly audit the labeling and storage of hazardous material and waste and the disposal of hazardous waste to verify that all subcontractors, at any tier, are fulfilling their roles as responsible parties.

10.2 Material Safety Data Sheets

In addition to the hazardous chemical list required above, the Construction Manager or another Subcontractor may request copies of the most current Material Safety Data Sheet on a chemical being used by other Subcontractors.

11.0 Emergency Management

11.1 Emergency Management Plan

11.1.1 Introduction

The purpose of this procedure is to establish the requirements, responsibilities and methods for notification and response to emergency conditions. This procedure applies to all personnel on the project site, including Subcontractor and visitors.

This Emergency Management Plan (EMP) has been developed to establish steps to be followed should an emergency or crisis situation occur on the project site. Examples of emergency situations on the project site include, but are not limited to, the following:

- any accident that results in life threatening or fatal injuries to any person;
- collapse of a structure, such as a crane, scaffold or building;
- fires requiring Fire Department involvement to extinguish; and
- accidental release of a hazardous material onsite or in the surrounding area.
- unusual smoke smell or visible smoke
- security incidents
- illness
- bomb threats
- explosions
- chemical/radiological release
- natural disasters

It is imperative that all possible steps be taken to prevent an emergency situation such as those mentioned above. Should such an emergency occur, the Project EMP will be used to effectively manage the emergency.

11.1.2 Responsibilities and Duties

The EMP establishes an Emergency Response Team made up of personnel from Subcontractors and the Project Safety Team. This team is established to handle the tasks that may be created by an emergency situation at the project site. The emergency response team will consist of the following:

- Subcontractor's Field Manager and Safety Representative;
- Project Safety Coordinator representative;
- On-site Medical Provider and pre-identified Cardiopulmonary Resuscitation (CPR)/First Aid volunteers from the workforce;
- Construction Manager representative

All accidents, injuries, illnesses, and emergencies that are not life threatening shall be reported immediately to the employee's supervisor. The supervisor shall report this information to the AE/CM within the hour and the AE/CM shall report this information to the SNS ES&H Office by the end of the shift. For emergencies requiring a Fire or Rescue response, address the emergency in accordance with Section 11.2, Emergency Response, of this plan and then notify the SNS ES&H Office.

The AE/CM will be responsible for all Occurrence Reporting to the SNS ES&H Office according to procedures.

Under no circumstances shall Subcontractor personnel make comments, statements, or engage in interviews with the media concerning an emergency. Such statements will be issued **only** through ORNL.

11.1.3 Assembly Point

An assembly point will be assigned for people on the site to report to in the event of an emergency. The specific location will be designated by the CM after appropriate review or the job site arrangement and will be prominently posted with an orange disc having 360-degree visibility. Instructions for use of the assembly point will be part of the badge access process, toolbox meetings and safety meetings.

11.2 Emergency Response

Emergency contact telephone numbers will be provided on access badges and will be posted at site entrances, the CM trailer, and the on-site medical facility. They will also be provided during orientation training and to all supervisors and forepersons.

11.2.1 First Aid/Medical

11.2.1.1 First Aid

For first aid response, notify the onsite medical provider. The phone number is published throughout the project site.

11.2.1.2 Transport

It is the Subcontractor's Field Manager's responsibility to provide non-emergency transportation of any ill or injured employee to the on-site Medical Trailer or off site. The On-site Medical Provider will coordinate transportation of all ill or injured employees off site. In the event of a medical emergency the ORNL Fire Department will be summoned to transport the employee.

A map of the project site indicating the location of the Project's Medical Trailer is included in the Subcontractor's Procedures Manual. The Project's list of designated clinics is located in the Medical Trailer and will be conspicuously posted in various locations throughout the site.

11.2.1.3 Medical Emergency

In the event of a medical emergency on-site immediately notify the Construction Manager and the On-site Medical Provider of the nature and severity of the incident by broadcasting the message, "*Lifesaver, Lifesaver, Lifesaver*," over the radio regular communication channel.

NOTE: Notification of an accident must be announced on the regular communication channel, not a private contractor channel. If your radio does not have access to the site-wide common communications channel, ensure that someone with that channel broadcasts the Lifesaver message.

- All non-emergency communications on the regular communications frequency must stop until emergency communications switch to the Emergency Frequency. The Construction Manager and On-site Medical Provider will acknowledge the *Lifesaver* call and mobilize to the accident location.
- Repeat the *Lifesaver* message if both do not respond to the first call. When either the CM or On-site Medical Provider responds, immediately give the following information:
  - Location of injured personnel
  - Type of injury
  - Bleeding?
  - Breathing?
  - Conscious?
- Upon making the Lifesaver call, the on-site medical provider will report to the accident location.
- Continue to provide information via radio on the regular communications frequency to the Construction Manager and the On-site Medical Provider until the either arrives at the accident site. When either arrives at the accident location they will announce the switch to the Emergency Frequency. Only at that point will regular communications continue on the common communications frequency.
- When the On-site Medical Provider arrives at location, they will assess injuries, direct the activities of any CPR/First Aid volunteers, and take over communications for the foreman or superintendent. The Construction Manager will remain in radio contact with responders at the location while mobilizing to scene. If necessary, the Construction Manager will make initial contact with 911 via cellular phone while mobilizing to the accident site.
- All other personnel should assist in clearing a path for emergency responders and emergency response vehicles.
- All unnecessary vehicles shall be cleared out of the emergency responders egress path for the duration of response effort.

11.2.2 Fire

Immediately notify Site Security of any fire by radio. Site Security will notify the fire department. After Site Security has been notified, notify the Construction Manager, the Safety Coordinator and any involved Subcontractor's safety representative or designee.

11.2.3 Property Damage

Notify Construction Manager of any damage to the Project.

11.2.4 Bomb Threat

Immediately notify the Construction Manager. The Construction Manager will coordinate notification to appropriate authorities.

11.2.5 Catastrophic Incidents

The Subcontractor's personnel will immediately notify the Safety Coordinator and the Construction Manager of the nature and extent of the incident. Should personal injury or an uncontrolled fire be involved, the Subcontractor's personnel should follow the medical emergency or fire procedure. The Construction Manager may determine the need for and summon additional appropriate emergency response assistance.

11.3 Severe Weather

The following severe weather procedures are to be utilized for meeting any impending threat of high winds, tornadoes or lightning storms:

11.3.1 General Procedures

- Each Subcontractor will need to develop and submit a copy of their site-specific severe weather plan. This plan will include a complete list of management personnel, in order of authority, to contact in the event of an emergency on this site. The list needs to be kept current and include the after-hours telephone numbers of the individuals to be contacted.
- Develop a "Call-In" team for post storm activities.
- Firmly anchor field trailers, temporary buildings and materials
- Lower crawler and mobile cranes at the end of each shift if possible. Cranes not capable of lowering booms are to be secured in accordance with the manufacturer's recommendations.

11.3.2 Emergency Reaction Meeting

Following an event of severe weather, the Construction Manager will call an emergency reaction meeting for all safety representatives and safety designees assigned to the Project. Previously gathered storm damage data, documentation, and pertinent photographs will be reviewed at this meeting.

11.4 Earthquake

Unlike circumstances dealing with adverse weather conditions, earthquakes usually occur without prior warning. Although an earthquake cannot be prevented from occurring, observing the following procedures can help to minimize injuries and property damage:

11.4.1 Basic Procedures to Follow During an Earthquake

- Stay calm.
- If you are inside a building: Stand in a doorway or crouch under a desk or table and stay away from windows or glass partitions.
- If you are outside: Stand away from buildings, structures, trees, telephone and electric lines or poles.

- If you are on the road: Drive away from overpasses, underpasses, bridges, and tunnels. Stop in a safe area and stay in your vehicle.

11.4.2 Basic Procedures to Follow After an Earthquake

- Check for injuries and provide first aid.
- Check for safety problems in and around the area where you are located, i.e., gas, water and sewage line breaks; downed electric lines and breaks in electrical lines; building damage such as cracks in the walls, chimneys, foundation and prepare for after shocks. Immediately upon discovery report to the SNS Team any safety problems observed.
- Contain all dangerous spills for cleanup. Immediately report to Construction Manager any dangerous spills and action being taken to minimize contamination.

The Construction Manager will call an emergency reaction meeting for all safety representatives assigned to the Project. Data collected will be reviewed at this meeting.

11.5 Warning Signals

There are public warning sirens (PWS) that include countywide emergency signals outside of the SNS complex that would be sounded in the event of a general emergency involving the release of hazardous materials. These sirens would wail continuously for three minutes.

If the PWS sirens are heard at the SNS site,

- Stop working
- Listen carefully to the instruction given by the SNS site emergency designee
- Follow instructions given by the site emergency designee

11.5.1 Shelter-in-Place

Follow these instructions if the SNS site emergency designee gives a verbal message to "Shelter-in-Place."

- If you are indoors, go to a strong, sheltered part of the building away from windows. A basement provides excellent protection.
- If you are in a motor vehicle or temporary structure (e.g. trailer or shed), go to a strong, sheltered part of the nearest permanent building.
- Do not evacuate a permanent building and do not return to offices for nonessential items (e.g., purses, planners) unless instructed to do so by the SNS site emergency designee.
- If a toxic material release is involved, immediately isolate yourself from the toxic environment. This isolation can be accomplished within a room by shutting down air systems and closing and sealing doors and windows. Follow instructions given by the SNS site emergency designee, building manager, and/or member of the Emergency Response Team during this type of emergency.

11.5.2 Evacuate Message

If the SNS S&H Office gives a verbal message to "Evacuate," follow these instructions:

- Immediately evacuate per SNS site emergency plan through the nearest exit unless otherwise directed by the Emergency Response Team member. Perform shutdown procedures ONLY^

when certain that safety will not be compromised. Take personal items such as briefcases, purses, coats, and keys

- Walk (don't run) to your assigned assembly station
- Follow the instructions provided at the assembly station

11.5.3 Other Alarms Signals

The SNS site may have local alarms that will sound, warning you that there is an emergency. Some of these are activated automatically while others are activated manually.

- SNS buildings have a Fire Alarm that is a recognizable electronic buzz.
- SNS uses the Standard Alerting Tone followed by an announcement of the Emergency Notification System/Public Address System to evacuate the building/area during a fire.

12.0 Employee Drug Testing Policy

12.1 Introduction

The ORNL and the Project are committed to providing a safe workplace for the workers assigned to the SNS, promoting high standards of employee health, and fostering productivity that satisfies their Quality expectations. Consistent with the intent and spirit of this commitment, the Project has established a substance abuse testing specification for the Project with the goal of maintaining a work environment that is free from the effects of the use of illegal drugs and alcohol.

This specification is not intended as a substitute for the Subcontractor's complete written substance abuse policy. Normally, such policies include other important features, including, but not limited to, an employee education and awareness program, a supervisor-training program, and an employee assistance program.

The Project requires that anyone entering the project site will comply with the substance abuse testing requirements as outlined in this section. The Project reserves the right to amend this specification upon written notice to the Subcontractor.

12.2 Contractual Requirements

All Subcontractors must have and enforce a written Substance Abuse Program incorporating the testing requirements, term, and conditions set forth in this plan. This plan is applicable to all employees, current and prospective, in order to be eligible to perform work at the project site. The Subcontractor must comply with this plan. Suppliers, vendors, and visitors are subject to confirmation of their abstinence from the possession or use of substances indicated in this plan. A copy of the substance abuse program must be submitted to the Project for approval prior to commencement of work on the project site.

The Substance Abuse Program must apply to the employees of the Subcontractors and subcontractors' of any tier working on the project site. This includes workers, new hires, replacement workers, and supervisory personnel. No employee or prospective employee of a Subcontractor shall be permitted to work on the project site unless such employee has submitted to testing as required by this plan and unless the results of such testing are negative as hereinafter defined. Subcontractor must provide the Project with a Monthly Summary Report of the Substance Abuse Program compliance.

All Contractors must train their respective employees in methods that will allow them to recognize substance abusers. Supervisory employees of the Subcontractor or its subcontractor shall be trained to take action, and to confront a substance abuser in a manner consistent with generally accepted safety training procedures.

The costs of implementing the Substance Abuse Program shall be borne by each respective Subcontractor affected by this plan.

Suppliers, vendors, and visitors must sign Drug Testing Policy (Attachment A), indicating their acceptance of the terms of this plan and their abstinence from substance abuse, and their continued avoidance of violations of this plan at the project site. Furthermore, in the event of an incident and/or accident occurrences involving, suppliers, vendors, and/or visitors, the same agrees to submit to substance abuse testing, at the Project's request. Refusal to submit to substance abuse testing when requested would be grounds for the Project to have the supplier, vendor, or visitor permanently barred from the project site.

12.2.1 Exception to Drug Testing

Any employee of the Department of Energy, Oak Ridge National Laboratory, Federal or State regulatory agency with a valid identification badge from the employee's agency may enter onto the construction site without proof of substance abuse testing.

12.3 Testing Requirements

The Project requires:

- pre-engagement drug and alcohol testing;
- drug testing for reasonable suspicion of illegal drug use;
- post accident / incident drug and alcohol testing; and
- drug testing following discovery of illegal or unauthorized drugs or paraphernalia.

Substance abuse testing shall be conducted in accordance with specified requirements found in 10 CFR Part 707. Initially the substances that will be screened will consist of the National Institute of Drug Abuse (NIDA) 5, however, the AE/CM reserves the right to expand the test panel to include the following substances should the need be established.

12.3.1 Substances

Threshold limits	**10 PANEL TEST PLUS ALCOHOL**	
	Initial Limit	GC/MS Confirmation Limit
Alcohol	**0.04%**	**0.04%**
Amphetamines	300 ng/ml	300ng/ml
Cocaine metabolites	300 ng/ml	150 ng/ml
Marijuana metabolites	20 ng/ml	10 ng/ml
Opiate metabolites	300 ng/ml	150 ng/ml
Phencyclidine	25 ng/ml	25 ng/ml
Barbiturates	300 ng/ml	100 ng/ml
Benzodiazepines	300 ng/ml	100 ng/ml
Methadone	300 ng/ml	100 ng/ml
Methaqualone	300 ng/ml	200 ng/ml
Propoxyphene	300 ng/ml	200 ng/ml

12.3.2 Definitions

Positive Tests. Test results that indicate the presence of legal or illegal substances at or above the threshold limit as set forth in this plan.

Negative Tests. Test results indicating that legal or illegal substance are at levels below the threshold limits is set forth in this plan.

Pre-engagement Testing. Testing for all substances other than alcohol as set forth in this plan conducted by Subcontractors or its lower-tier subcontractors for their employees or prospective employees within 120 days prior to their appearance on the project site.

For Cause Testing. Testing for all substances set forth in this plan conducted by the respective Subcontractor for their employees whose behavior on the project site causes either the Construction Manager/Project personnel or the respective Subcontractor supervisory personnel to reasonably conclude that such behavior may result from substance abuse.

The Project. The project is defined as the SNS Construction Project total construction of which the work performed under the Contract Documents may be the whole or a part and which may include construction by the Subcontractor or other Subcontractors.

Post-Accident / Incident Testing. Testing for all substances set forth in this plan conducted by the respective Subcontractor for their employees involved in an injury producing accident or a "near miss" in which injury is avoided or in events resulting in damage to property as determined by the Construction Manager/ Project personnel or the respective Subcontractor supervisory personnel.

12.4 Further Testing Requirements

All Subcontractors must perform pre-engagement, for cause, and post-accident / incident testing as follows:

- All drug testing must be conducted by a National Institute of Drug Abuse certified laboratory with test results interpreted by a licensed medical review officer.
- The initial screen tests for alcohol shall be performed by using either a saliva test or a Breathalyzer test comparable to the type used by state or local law enforcement officials. Furthermore, alcohol confirmatory tests shall be performed by using either a blood alcohol test or a Breathalyzer test comparable to the type used by state or local law enforcement officials.

12.5 Compliance Procedure

The Project reserves the right to audit any substance abuse program required by this plan to verify compliance results within 24 hours of the Project's notification of intent to audit. The Project shall have free right of access to all relevant records of the subcontractor and their subcontractor's and suppliers for this purpose, provided such record disclosures are within the scope of guidelines pertaining to confidentiality of employee records.

The Contractors' pre-engagement employees who receive a positive test result shall immediately leave the project site. Transportation of employees receiving a positive test result is the direct responsibility of the employing Subcontractor. Furthermore, pre-engagement employees receiving a positive test result shall not be permitted to return to the project site earlier than 90 days from the date of the positive test. At that time the employee may begin the process outlined by this specification again.

If a current employee testing positive qualifies and successfully completes the Subcontractor assessment/substance abuse treatment program, a program approved by the Project, the employee will be exempt from the 90-day requirement if said employee agrees to the following:

- Submit to substance abuse testing as described in this specification and receive a negative test result; and
- Agree to random substance abuse testing not to exceed one test per 500 work hours over a 3-year period from the date of return to the project site.

All suppliers, vendors, and visitors must sign the Drug Testing Policy (Attachment A). Their signature indicates acceptance of the terms of this plan and their abstinence from substance abuse, and their continued avoidance of violations of this plan at the project site. Refusal to submit to substance abuse testing when requested would be grounds for the Project to have the supplier, vendor or visitor permanently barred from the project site.

REFERENCES

Department of Energy Policy 450.4, Integrated Safety Management System

Occupational Safety and Health Administration (OSHA) Guidelines

29 Code of Federal Regulations (CFR) 1926

Protocol for Review and Approval of Documented Safety Management System Descriptions Associated with Defense Nuclear Facilities, by Thomas P. Grumbly

ATTACHMENT A
DRUG TESTING POLICY

I have reviewed the Drug Testing Policy established by the Project for this project site. I hereby voluntarily agree with and accept the terms of the Drug Testing Policy as specified. Furthermore, I agree to submit to substance abuse testing, at the Project's request, in accordance with the expectations outlined in the Drug Testing Policy. I understand that refusal to submit to substance abuse testing when requested will be grounds for the Project to permanently prohibit me from re-entering the project site.

Exception to Drug Testing

Any employee of the Department of Energy, Oak Ridge National Laboratory, Federal or State regulatory agency with a valid identification badge from the employee's agency may enter onto the construction site without proof of substance abuse testing.

AGREED TO:

_____

Signature **Date**

_____

Witness **Date**

REFUSED:

_____

Signature **Date**

_____

Witness **Date**

Reasons for refusal: _____

_____

_____

_____

ATTACHMENT B
Page 1 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE 5484.3
(05-98)
All Other Editions
Are Obsolete

OMB Control No.
1910-0300

OMB Burden Disclosure Statement

Public reporting burden for this collection of information is estimated to average 120 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Resources Reduction Project (1910-0300), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-0300), Washington, DC 20503.

U.S. Department of Energy
INDIVIDUAL ACCIDENT/INCIDENT REPORT
Official Use Only-Privacy Act

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C 552a(e) (3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Department of Energy (DOE) on this form. This information is maintained in a system of records designated as DOE-38 and described in Federal Register 14309 (April 2, 1982).

1. AUTHORITY. Atomic Energy Act of 1954, as amended. Pursuant to 5 U.S.C. 301; Department of Energy Organization Act, including authorities referenced in Title III of the Department of Energy Organization Act; Federal Tort Claims Act, 28 U.S.C. 2671-2680; Military Personnel and Civilian Employees Claims Act, 31 U.S.C. 240-243; Executive Order 12009.

2. PRINCIPAL PURPOSE(S). This information is used by the DOE in its evaluation of occurrences involving worker injury/illness, property damage, and vehicle damage associated with activities and in exercising its statutory responsibility to monitor and regulate the safety and health practices at DOE and DOE contractor facilities. These data permit a meaningful comparison of both the current and long-term safety and health experience among DOE facilities.

3. ROUTINE USES. The information may be used to provide data to other Federal and State agencies involved in monitoring and/or evaluating occupational injuries and illnesses. The information may also be disclosed to appropriate Federal, State, or local agencies in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION. DOE and DOE contractors must complete occupational injury and illness records in compliance with the guidelines outlined in DOE O 231 and DOE M 231.1-1. The social security number is used to assure that DOE has an accurate identifier not subject to the coincidences of similar names or birth dates among the large number of persons on whom the data are maintained.

5. SYSTEM MANAGER(S) AND ADDRESS
   Deputy Assistant Secretary for Worker Health and Safety, EH-5
   U.S. Department of Energy
   19901 Germantown Road
   Germantown, MD 20874-1290

GENERAL INSTRUCTIONS FOR COMPLETING DOE F 5484.3

This form is to be used to record all accidents/incidents reportable under DOE O 231.1 and DOE M 231.1-1. Each accident should be investigated to the degree necessary to fully complete each section of the form. Mail completed forms to the CAIRS Input Coordinator, SCIENTECH, Inc., 1690 International Way, Idaho Falls, ID 83402 -- Attention: CAIRS Input Coordinator.

GENERAL INFORMATION

1. Indicate the name of the reporting organization (DOE Office, DOE Contractor, or subcontractor) where the accident took place. Enter the 7-character identification number that has been assigned to the specific reporting organization.

2. Enter the case number. All cases for a given reporting organization are to be numbered in sequence, regardless of accident/incident type, with the first four digits representing the year (i.e., the tenth accident of 1995 is numbered 1995010). Check the box marked "Revision," if applicable. (NOTE: Revised data will overwrite previously reported data that has been entered into the database.)

3. Enter multiple-case number, if applicable, Multiple-case accidents/incidents are those that result in more than one recordable instance of injury, property or vehicle damage or combination thereof (e.g., two or more injured persons, two or more damaged vehicles, or any combination of injury/property/vehicle cases). Report each case that resulted from a single accident/incident on a separate DOE F 5484.3, with an identical multiple case accident number to show relationship to the common accident/incident. If multiple accident, the CAIRS data administrator must be contacted for assignment of a multiple case number. For example, if the first multiple-case of the year resulted in two individual employees being injured in a one-car rollover, each case would be reported on a separate DOE F 5484.3 and assigned sequential case numbers (e.g., 1995005 and

ATTACHMENT B
Page 2 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE 5484.3
(05-98)
All Other Editions
Are Obsolete

OMB Control No.
1910-0300

1995006). The vehicle damage, if reportable, would be shown on a third form and assigned case number 1995007. However, the same multiple case number (e.g., 01 for the first multiple case of the year) should be entered on line 3 of each of the three forms. Additional multiple accidents in the year should be numbered sequentially (e.g., 02, 03).

4. Check the box that best characterizes the type of accident/incident. Include in vehicle type all transportation accidents (e.g., highway vehicle, aircraft, marine, and railroad).

5. Indicate the investigation Type: A, B, or C. The Non-recordable box is used when a previously reported case has been revised to non-recordable status (e.g., found to be less than the reportable amount for dollars loss).

6. Enter the Department or Division. This input field is available for structuring subgroups within a reporting organization.

7. Enter date of accident/incident.

8. Enter time of accident in Military time.

9. Check the appropriate box to indicate where the accident occurred.

10. Check the appropriate box to indicate if accident/incident occurred on employer's premises.

11. Enter the specific location of the accident (e.g., laboratory, test area 10, office area 615, street address).

EMPLOYEE INFORMATION

12. Check appropriate box (e.g., injured or ill employee or operator or equipment/vehicle.)

13. Enter the name of address of employee or operator.

14. Enter Social Security number of employee or operator.

15. Enter date of birth of employee or operator.

16. Check appropriate box (i.e., "Female" or "Male") to indicate gender of employee or operator.

17. Enter generic job title of employee or operator (e.g., engineer, welder, security guard).

18. Enter time employee began work in Military time.

19. Enter date of hire.

20. Check the appropriate box for length of job/equipment experience.

INJURY/ILLNESS INFORMATION

21. Check appropriate box. Refer to the form OSHA No. 200 (Injury Code 10 or illness Codes 21 through 29) to obtain applicable code.

22. Enter number of workdays lost due to accident/incident. If employee has not returned to work, enter your best estimate of expected days away from work. If necessary, submit a revision if estimated loss of workdays is incorrect.

23. Enter number of restricted workdays resulting from accident/incident. If employee is still on restricted status, enter the best estimate of expected restricted days. Submit a revision if estimated restricted workdays is incorrect.

24. Check appropriate box to indicate whether the employee has returned to work with no further workdays lost or restricted anticipated.

25. Check appropriate box to indicate if employee was transferred or terminated because of disability related to injury/illness.

26. Check appropriate box to indicate whether accident/incident resulted in death. If "yes," enter date of death.

PROPERTY/VEHICLE DAMAGE

27. If "Property Damage" was checked in Number 4, select the appropriate box to indiciate the property loss type.

28. If "Vehicle" was checked in Number 4, select the appropriate box to indicate type of vehicle involved in accident/incident.

29. Check appropriate box for each question concerning seat belts.

30. Check appropriate box to indicate if accident/incident involved a recordable injury.

31. Enter the total dollar amount (rounded to nearest dollar) of accident/incident damage loss on first line. On following lines, separate the loss between DOE and non-DOE property or vehicle damage, entering the dollar amounts rounded to the nearest dollar.

32. Record amount of claim against DOE for damages to non-DOE vehicles/property, if applicable, and the amount actually paid by DOE when available. Enter the amount of dollar loss, if any, to vehicle/property that should be reimbursable to DOE; also enter the

ATTACHMENT B
Page 3 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE 5484.3
(05-98)
All Other Editions
Are Obsolete

OMB Control No.
1910-0300

amount actually paid to DOE, if and when available. Do not delay the report. If necessary, submit a revision to report actual amounts paid after the case is settled.

33. Check appropriate box to indicate whether dollar amounts are final.

34. Give the generic or brand name and model. Identification should be adequate to alert others of potential hazards associated with a specific model.

35. Check appropriate box to indicate if the equipment design or defect contributed to the accident cause or severity.

NARRATIVE GUIDE

36. Explain what activity or assignment was in progress at the time of the accident. (Examples: 1. Routine housekeeping duties were being performed. 2. Employee was involved in a routine security inspection. 3. No activity was in the facility due to extended holiday weekend.)

37. Describe the accident sequentially, beginning with the initiating event, and followed by secondary and tertiary events. End with the nature and extent of injury/damage. Name any object or substance and tell how they were included. Provide the name and address of the health care provider and (if hospitalized as the result of the accident) indicate the name and address of the hospital. (Examples: 1) Employee was pulling utility cart that was loaded with wastepaper from office area to hallway. Wheel of utility cart caught against door casing. Bags of heavy wastepaper that were in cart fell to end of cart. Cart tipped over onto foot of employee. Right foot was crushed between utility cart and door casing, resulting in severe contusion to right foot of employee. 2) No employee activity. HVAC system malfunctioned during long weekend. Upper floor and office building became excessively hot and triggered the automatic sprinkler system. Upper office area and contents were damaged by water. Extensive cleanup required. 3) Employee was driving patrol car from guard station to research facility. Patrol car struck icy section of road. Employee lost control of vehicle, which skidded across road into concrete abutment on side of road. Accident resulted in damage to right fender, tire, headlight, and grill.

38. Conditions--State the conditions that existed at the time of the accident (the specific control factors that were or may have been the direct or immediate cause or causes of the accident). Example: 1) Wheel of utility card was worn and would not roll properly. Utility cart was overloaded with wastepaper. 2) Thermostatic control of HVAC system had been improperly installed during recent replacement. 3) Road was covered with icy spots. Weather was foggy.

    Actions--Enter the actions on the part of the employees that contributed to the occurrence of the accident/incident. Example: 1) Employee overloaded the utility cart with wastepaper. 2) Facility maintenance had not inspected the newly installed thermostatic control. 3) Employee exceeded safe speed on icy road and was inattentive to hazard.

    Factors influencing a or b--List the influencing factors or underlying causes, either conditions or actions or both, that contributed to the accident/incident. Example: 1) Employee had not been instructed in overloading hazards. 2) No existing supervisory review over craft-assigned repairs. 3) Employee had not been trained in driving under winter conditions. Company has no driver training program.

39. Actions taken--Describe the actions taken to prevent recurrence of accident/incident. Example: 1) Wheels of utility cart were replaced with larger size wheels. All carts were inspected for safe operation. Maintenance employees were instructed in overloading hazards. 2) Termostatic control was inspected and found free of defects; it was then properly rewired. 3) All security personnel were instructed at the safety training meeting on driving under hazardous conditions.

    Actions recommended--Describe corrective actions that are planned by line management and require time for implementation. Example: 1) Provide human factors review of utility carts and other equipment purchases. 2) Management to review maintenance procedures and inspection process. 3) Driver training program will be implemented.

    Provide the implementation date for recommended corrective action.

40. Enter the name of the person who completed the form who can be contacted for follow-up, the date the form was prepared, the telephone number, and the person's official position.

41. Enter the name and telephone number of the cognizant supervisor. This should be the individual who, by his signature, concurs in and assures corrective action implementation.

42. Enter the name and telephone number of the person to contact with questions regarding the information contained in the report, if different from 40.

ATTACHMENT B
Page 4 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE F 5484.3
(05-98)
All Other Editions
Are Obsolete

U.S. Department of Energy
INDIVIDUAL ACCIDENT/INCIDENT REPORT
Official Use Only – Privacy Act

OMB Control No.
1910-0300

General Information

1. Organization Name: _____
   Organization Code: | | | | | | |
2. Case Number | | | | | | | Revision: ☐ Yes
3. Did accident involve more than one reporting organization?
   ☐ Yes ☐ No
   Multiple Case Number: | |
4. Accident Type: ☐ Injury/Illness ☐ Vehicle ☐ Property Damage ☐ Other
5. Investigation Type: ☐ A ☐ B ☐ C ☐ Non-recordable
6. Department, Division, or I.D. Code: _____
7. Date of Occurrence: | | | | | | | | (Month Day Year (YYYY))
8. Time of Event: | | | | (Military)
9. Accident Occurred: ☐ Indoors ☐ Outdoors
10. On Employer's Premise: ☐ Yes ☐ No
11. Specific Location: _____

Employee Information

12. Check One:
   ☐ Injury/Illness Employee
   ☐ Operator of Equipment/Vehicle
   ☐ Not Applicable
13. Name: _____
    Home Address: _____
14. Social Security No. | | | | | | | | |
15. Date of Birth | | | | | | | | (Month Day Year (YYYY))
16. Sex: ☐ Female ☐ Male
17. Occupation: _____
18. Time Employee Began Work: | | | | (Military)
19. Date of Hire: | | | | | | | | (Month Day Year (YYYY))
20. Experience on this Job/Equipment
   ☐ Under 3 months
   ☐ 3 to 12 months
   ☐ Over 12 months

(If Property Damage or Vehicle Accident, go to Line 26.)

Injury/Illness (OSHA Information)

21. ☐ Injury Code (10)

Illness Codes
- ☐ Code 7a(21) – Skin disease or disorders
- ☐ Code 7b(22) – Dust diseases and lungs
- ☐ Code 7c(23) – Resp. due to toxic agents
- ☐ Code 7d(24) – Poisoning
- ☐ Code 7e(25) – Disorders-Physical agents
- ☐ Code 7f(25) – Disorders-Repeated trauma
- ☐ Code 7g(29) – All others

22. Workdays Lost: | | | | | (Actual if available or estimated expected)
23. Workdays Restricted: | | | | | (Actual if available or estimated expected)
24. Has employee returned to work with no further anticipated workdays lost or restricted?
   ☐ Yes ☐ No
25. Permanent transfer to different job because of accident?
   ☐ Yes ☐ No
   Terminated because of accident?
   ☐ Yes ☐ No
26. Did employee die? ☐ Yes ☐ No
   If "Yes," enter date | | | | | | | | (Month Day Year (YYYY))

18 U.S.C. SECTION 1001; ACT OF JUNE 25, 1948: 62 STAT. 749; MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR PRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTERS WITHIN ITS JURISDICTION.

ATTACHMENT B
Page 5 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE F 5484.3
(05-98)
All Other Editions
Are Obsolete

U.S. Department of Energy
INDIVIDUAL ACCIDENT/INCIDENT REPORT
Official Use Only – Privacy Act

OMB Control No.
1910-0300

Property/Vehicle Damage

27. **Property Loss Type** (Select One)

Fire/Smoke: ☐ Building ☐ Brush ☐ Vehicle ☐ Other

Electrical: ☐ Equipment Contact ☐ Wiring ☐ Overload ☐ Insulation ☐ Polarity ☐ Grounding ☐ Other

Explosion: ☐ Vapor ☐ Chemical ☐ Fluids ☐ High Explosives ☐ Dust

Mechanical: ☐ Linear Energy ☐ Rotational Energy ☐ Pressure ☐ Falls ☐ Mechanical Breakdown ☐ Overload

Acts of Nature: ☐ Wind ☐ Rain/Hail ☐ Flood ☐ Freezing/Snow ☐ Lightning ☐ Earthquake ☐ Other

Leaks, Spills, Releases, or Contamination: ☐ Chemical ☐ Nuclear ☐ Environmental Impairment ☐ Other

Miscellaneous: ☐ Thermal ☐ Corrosion ☐ Water Damage ☐ Sabotage ☐ Other

(If Property Damage Accident go to Line 30)

28. **Vehicle Type** (Select One)

Light Highway: ☐ Automobile ☐ Van ☐ Pickup Truck ☐ Motorcycle, moped ☐ Highway vehicle, n.e.c.

Heavy Highway: ☐ Bus ☐ Delivery Truck ☐ Dump Truck ☐ Semitrailer, tractor trailer, trailer truck ☐ Truck, n.e.c. (e.g., fire truck)

Air Rotary Wing: ☐ Helicopter ☐ Aircraft—rotary wing, n.e.c.

Air Fixed Wing: ☐ Jet ☐ Propeller-driven aircraft ☐ Aircraft—fixed wing, n.e.c.

Other Vehicles: ☐ Railroad ☐ Marine

29. Was vehicle equipped with seat belts? ☐ Yes ☐ No
If "Yes," was seat belt in use? ☐ Yes ☐ No

30. Did vehicle accident involve recordable injury? ☐ Yes ☐ No

31. Total Accident Damage $
DOE Property/Vehicle $
Non-DOE Property/Vehicle $

32. Claim Against DOE $ Paid by DOE $
Reimbursable to DOE $ Paid to DOE $

33. Are the dollar amounts final? ☐ Yes ☐ No

Equipment/Hardware/Vehicle Involved (as applicable)

34. #1 Equipment _____
Generic (or brand) name and model
#2 Equipment _____
Generic (or brand) name and model

35. Did equipment or defect contribute to accident cause or severity? ☐ Yes ☐ No

ATTACHMENT B
Page 6 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

DOE F 5484.3
(05-98)
All Other Editions
Are Obsolete

U.S. Department of Energy
INDIVIDUAL ACCIDENT/INCIDENT REPORT
Official Use Only – Privacy Act

OMB Control No.
1910-0300

NARRATIVE GUIDE

DO NOT INCLUDE THE NAME (OR OTHER PERSONAL IDENTIFIER) OF THE EMPLOYEE/OPERATOR OR WITNESS IN THIS SECTION.
Use third person references, e.g., he slipped on the wet floor and broke his right toe.

36. Activity in progress at time of accident. Be specific. For example, if the employee was using equipment or handling materials or chemicals, name them and tell what he was doing with them.

37. Events Describe the accident sequentially, beginning with initiating events. Tell what happened, how it happened and end with nature and extent of injury/damage. Use a separate sheet for additional space.

Name any objects or substances (e.g., utility knife, glass beaker containing saline solution) involved and tell how they were involved.

Describe the nature of the injury/damage. Name the body part affected if injury or illness. (e.g., amputation of right index finger at second joint)

Name and address of primary health care provider (e.g., physician, nurse, etc.) _____

If hospitalized overnight, name and address of hospital _____

38. Accident Causes
a. Conditions

b. Actions

c. Factors influencing a or b.

39. Corrective Actions (If risk is acceptable, corrective action may not be necessary. If so, indicate "Not applicable" in section "a." below.)
a. Actions taken

b. Actions recommended

c. To be completed by _____(Implementation Date)

40. Report Prepared by _____ Date _____ Telephone _____
Official Position ☐ Supervisor ☐ Safety Professional ☐ Other

41. Supervisor responsible for Corrective Action _____ Date _____ Telephone _____

42. Accident Investigation Contact (if different from line 40) _____ Telephone _____

ATTACHMENT B
Page 7 of 7
INDIVIDUAL ACCIDENT/INCIDENT REPORT

OMB Control No.
1910-0300

Distribution List

For Y-12 accident/incident, submit completed original to:

Industrial Safety
Building 9706-2, Mail Stop 8103
Fax (865) 241-9166

Send photocopy to:

- Benefit Plans, MS-8258, Building 104UVR
- Division/Organization Manager
- Division/Organization Safety Coordinator
- Supervisor

ATTACHMENT C
EXCAVATION NOTICE

This notice is to inform the SNS Team that on _____ we will begin an excavation operation that will exceed five feet in depth.

Describe the task and excavation purpose _____

Excavation Measuremen Length _____ Width _____ Depth _____

Protective System to be used (check all that apply):	☐ Trench Box	☐ Shoring	☐ Sloping
Water conditions:	☐ Wet	☐ Dry	☐ Submerged
Potential for hazardous atmospheres:	☐ None	☐ Moderate	☐ High Potential

Protection Measures: _____

Utilities or structures located:	☐ Yes	☐ No (DO NOT proceed until this item is Yes)
Sewer and gas lines exposed:	☐ Yes	☐ No
Utilities or structures protected:	☐ Yes	☐ No

Other remarks or information: _____

Date: _____

Competent Person: _____ Company: _____

Safety Designee/Representative: _____

ATTACHMENT D
STORAGE AREA REQUEST

Describe the material to be stored: _____

_____

Describe the intended storage area: _____

_____

Projected Duration: _____

_____

Will material be stacked: ☐ Yes ☐ No ☐ Combination

Is the intended storage area within 25 feet of an existing or occupied structure? ☐ Yes ☐ No

Protection Measures: _____

_____

_____

Is material a hazardous substance?	☐ Yes	☐ No (if yes, attach a copy of the MSDS)
Are all storage containers labeled as to content?	☐ Yes	☐ No
Is bagged material to be layered, stepped back, and cross-keyed?	☐ Yes	☐ No
Are round materials to be blocked to prevent spreading or rolling?	☐ Yes	☐ No

Other remarks or information: _____

_____

_____

_____

_____

_____

Date: _____

Competent Person: _____ Company: _____

Safety Designee/Representative: _____

ATTACHMENT E
SPECIAL SCAFFOLDING NOTICE

Describe the special scaffolding situation: _____

_____

Describe the scaffolding task: _____

_____

Identify hazardous conditions: _____

_____

Type of scaffolding to be utilized: _____

Is the intended scaffolding area within 25 feet of an existing or occupied structure? ☐ Yes ☐ No

If yes, protection measures: _____

_____

_____

Will people or machinery be prevented from passing beneath the scaffold? ☐ Yes ☐ No (If no, attach a copy of the protective measures to be used to prevent injury or damage to those below the scaffold.)

Will materials be piled or stacked on the scaffold? ☐ Yes ☐ No

Are any special precautions required to protect workers while on the scaffold? ☐ Yes ☐ No

If yes, protection measures: _____

_____

_____

Other remarks or information: _____

_____

_____

Date: _____

Competent Person: _____ Company: _____

Safety Designee/Representative: _____

ATTACHMENT F
Page 1 of 2
JOB SAFETY ANALYSIS WORKSHEET (JSA)

Title of Job/Operation _____ **Date**_____

Analysis Performed By:_____

Prime Contractor or Subcontractor _____

Reviewed By:_____

Sequence of Basic Job Steps	Potential Accidents or Hazards	Recommended Safe Job Procedures

Potential Hazards:

1. Struck By SB
2. Struck Against SA
3. Contacted By CB
4. Contact With CW
5. Caught On CO
6. Caught In CI
7. Caught Between CBT
8. Fall-Same Level FS
9. Fall to Different Level FDL
10. Overexertion OE
11. Exposure E

ATTACHMENT F
Page 2 of 2
JOB SAFETY ANALYSIS WORKSHEET (JSA)

JOB SAFETY ANALYSIS (JSA)

STEP 1.

Identify jobs posing the greatest accident risk.

STEP 2.

Prioritize selected jobs into four (4) main areas.

1. Jobs with high accident frequency
2. Jobs with lower frequency but higher severity
3. Jobs with serious injury potential
4. New jobs with no accident history

STEP 3.

Conduct job analysis

1. Use either the direct observation method or the discussion method.
2. For best results observe and discuss job using an experienced employee in that job.

STEP 4.

You need an understanding of the types of accidents possible in your workplace and you must review the records of the past accidents.

There are six (6) categories of accidents:

1. Struck (By or against)
2. Contact (abrasion, electric shock, etc.)
3. Caught (in, on, between, under)
4. Fall (from elevation or same level)
5. Over exertion (stress or strain)
6. Exposure (exposed to gases, fumes, mists, etc.)

STEP 5.

Develop recommended safe work procedures. Use complete JSA to conduct initial training of new employees, or to review safe procedures with existing employees. JSA are also useful for accident investigation as a resource.

ATTACHMENT G
ORIENTATION ACKNOWLEDGEMENT FORM

My signature below acknowledges my completion of the project specific safety orientation and review of the security rules and regulations. I agree to adhere to these, as well as all other specific project rules and regulations.

Check as covered:

☐ **Eye Protection**	☐ **Fire Protection**
☐ **Head Protection**	☐ **Interim Life Safety Measures**
☐ **Foot Protection**	☐ **Drug Policy**
☐ **Clothing Requirements**	☐ **Employee's guide to WC Managed Care**
☐ **Fall Protection**	☐ **MSDS Procedure**
☐ **Scaffold Tagging Requirements**	☐ **Security**
☐ **Work Permit**	☐ **Lockout Procedures**
☐ **Hot Work Permit**	

Project Identification Data Sheet

Please Print Clearly

Last Name:_____ First Name:_____

SSN:_____-_____-_____ Employer:_____

Trade:_____ Contact Number:_____

Signature:_____ Date:_____

A Photo ID will be required at the time the Project ID is issued.

ATTACHMENT H
TOOL BOX SAFETY MEETING

This form is to be completed by supervisors for all safety meetings conducted.

DATE:	
PRIME CONTRACTOR:	
SUBCONTRACTOR:	
CONDUCTED BY:	
SUBJECT(S) DISCUSSED:	

ATTENDEES		
PRINT NAME	BADGE #	SIGN NAME

Use reverse side if necessary

ATTACHMENT I
Page 1 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

Project No: _____ **Date Submitted:** _____
Prime Contractor: _____ **Contract #** _____
Safety Representative: _____
Total Employees: _____
Total contractor's employees: _____
Total subcontractor's employees: _____

1.0 Current Status of Contract (Check appropriate activities)

☐	Site clearing & grubbing	☐	Overhead mechanical/electrical
☐	Excavation	☐	Interior finishes
☐	Foundations	☐	Demolition
☐	Structural frame	☐	Remodeling
☐	Exterior enclosure	☐	Close out
☐	Other _____		

2.0 Office Procedures

Yes	No	N/A		Description
☐	☐	☐	1.	Safety & health poster posted.
☐	☐	☐	2.	Emergency telephone numbers posted.
☐	☐	☐	3.	First aid kit & supplies on job.
☐	☐	☐	4.	Copy of OSHA safety standard in the office
☐	☐	☐	5.	ToolBox meeting reports issued, forwarded to Project Superintendent & filed.
☐	☐	☐	6.	Safety notices issued, forwarded to Project Superintendent & filed.
☐	☐	☐	7.	Received visit from OSHA this month.
☐	☐	☐	8.	Emergency stretcher located on job - near hoist or elevator.
☐	☐	☐	9.	Any 1st aid injuries reported were forwarded to Project Superintendent and Project Safety Department.
☐	☐	☐	10.	OSHA Form 200 posted.

ATTACHMENT I
Page 2 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

3.0 Site Security & Warning Signs

Yes	No	N/A		Description
☐	☐	☐	1.	**Site secured with fence and gates.**
				Corrective action:
☐	☐	☐	2.	**Warning signs posted for general public.**
				Corrective action:
☐	☐	☐	3.	**Overhead protection installed at entrances where any overhead work is proceeding.**
				Corrective action:
☐	☐	☐	4.	**Any exterior storage of flammable liquids:**
☐	☐	☐		**a) At least 20 feet from all buildings**
☐	☐	☐		**b) No Smoking signs posted (signs should read Danger – Flammable)**
☐	☐	☐		**c) Containers properly labeled**
☐	☐	☐		**d) Spill containment in place**
				Corrective action:
☐	☐	☐	5.	**All excavation outside secured area is fenced or isolated from traffic areas.**
				Corrective action:
☐	☐	☐	6.	**All mobile equipment locked when not in use.**
				Corrective action:
☐	☐	☐	7.	**Occupied areas of the project are barricaded and warning signs posted.**
				Corrective action:

N/A = Not Applicable "NO" requires corrective action

ATTACHMENT I
Page 3 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

4.0 Safety Responsibilities

Yes	No	N/A		Description
☐	☐	☐	1.	Perimeter guard rails-installed properly for protection of all employees. Corrective action:
☐	☐	☐	2.	All shafts of floor openings protected by guardrails or covered. Corrective action:
☐	☐	☐	3.	Temporary ladders properly installed to all levels, secured at the top. Corrective action:
☐	☐	☐	4.	Operating rules posted in operator's station and all equipment safety checked at the start of the day. Corrective action:
☐	☐	☐	5.	Overhead protection installed to protect operator of material hoist. Corrective action:
☐	☐	☐	6.	All hoist entrances guarded by barricades. Corrective action:
☐	☐	☐	7.	Employees are wearing hard hats and all required personal protection equipment. Corrective action:
☐	☐	☐	8.	Fire protection programs and emergency evacuation procedures established. Corrective action:

N/A = Not Applicable **"NO" requires corrective action**

ATTACHMENT I
Page 4 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

I.0 Safety Responsibilities (continued)

☐	☐	☐	9.	**Fire extinguishers installed throughout the project.**
				Corrective action:
☐	☐	☐	10.	**All new employees instructed in specific safety procedures prior to starting work.**
				Corrective action:
☐	☐	☐	11.	**Weekly toolbox meetings are being held with field employees of contractors/subcontractors.**
				Corrective action:
☐	☐	☐	12.	**Adequate toilet facilities are installed and are being kept sanitary.**
				Corrective action:
☐	☐	☐	13.	**Trash containers and regular disposal is provided.**
				Corrective action:
☐	☐	☐	14.	**Potable water provided for employees.**
				Corrective action:
☐	☐	☐	15.	**Traffic control measures are used to protect crossing traffic and pedestrians.**
				Corrective action:
☐	☐	☐	16.	**New employees processed through project orientation.**
				Corrective action:

N/A = Not Applicable **"NO" requires corrective action**

ATTACHMENT I
Page 5 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

5.0 Crew Specific - Safety Responsibilities

Yes	No	N/A		Description
☐	☐	☐	1.	Hard hats being worn in required areas. Corrective action:
☐	☐	☐	2.	Personal protection equipment being worn where required. Corrective action:
☐	☐	☐	3.	Excavations and trenches are sloped properly or braced. Corrective action:
☐	☐	☐	4.	Perimeter guardrail cables installed at all floor edges and openings (steel construction). Corrective action:
☐	☐	☐	5.	Weekly toolbox meetings are being held. Corrective action:
☐	☐	☐	6.	Housekeeping is being kept up to date. Corrective action:
☐	☐	☐	7.	All flammable liquids are being properly stored and handled. Corrective action:
☐	☐	☐	8.	Gas cylinders are transported, used and/or stored properly. Corrective action:
☐	☐	☐	9.	Are all hand and power tools used, maintained and stored in a safe condition. Corrective action:

N/A = Not Applicable **"NO" requires corrective action**

ATTACHMENT I
Page 6 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

5.0 Prime Contractor - Safety Responsibilities

Yes	No	N/A		Description
☐	☐	☐	10.	Temporary lighting is installed in areas where it is needed. Corrective action:
☐	☐	☐	11.	Entire temporary electrical system on ground fault interrupter. If NOT, all prime contractors are cooperating in an assured grounding program. Corrective action:
☐	☐	☐	12.	All cranes or rigging equipment checked daily for safety prior to use. Corrective action:
☐	☐	☐	13.	Mobile cranes are checked for stability, outriggers properly blocked on stable ground. Corrective action:
☐	☐	☐	14.	Counterweight swing areas are barricaded to prevent access to unaware workers. Corrective action:
☐	☐	☐	15.	Crane operators are cautioned to stay away from all overhead power lines. Corrective action:
☐	☐	☐	16.	All welders are instructed in safe welding and cutting practices. Fire protection measures taken and a fire extinguisher is available. Corrective action:
☐	☐	☐	17.	New employees have attended project orientation. Corrective action:

N/A = Not Applicable **"NO" requires corrective action**

ATTACHMENT I
Page 7of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

5.0 Prime Contractor - Safety Responsibilities

Yes	No	N/A		Description
☐	☐	☐	18.	**Scaffolds (rolling or free standing) are not more than four times minimum base dimension. (If five feet wide, not over twenty feet high.) Scaffolds are equipped with a ladder.** **Corrective action:**
☐	☐	☐	19.	**Scaffolds or platforms are tightly planed for full width.** **Corrective action:**
☐	☐	☐	20.	**All scaffolds or platforms are provided with a guard rail (2 x 4) or equivalent 42" high, midrail (1 x 6) or equivalent and a toe board 4" high.** **Corrective action:**
☐	☐	☐	21.	**Hanging scaffolds or bucket-cables are checked daily. Safety harnesses and lanyards are used by employees.** **Corrective action:**
☐	☐	☐	22.	**Adequate supply of potable (drinking) water is available on the job, clearly marked, with paper cups and trash containers provided.** **Corrective action:**
☐	☐	☐	23.	**All damaged or excessively worn equipment tagged out or removed from the project.** **Corrective action:**
☐	☐	☐	24.	**List additional safety requirements implemented for this project.**

ATTACHMENT I
Page 8 of 8
PRIME CONTRACTOR MONTHLY SAFETY AUDIT CHECKLIST

5.0 Additional Comments,

_____ / _____ /
Person conducting the audit / title / date

_____
Signature

ATTACHMENT J
SAFETY OBSERVATION NOTICE

To Prime Contractor:_____ Date:_____

The SNS Team is formally notifying the Prime Contractor Party that the following condition(s) are in non-compliance with the safety requirements established for the Project:_____

_____

_____

_____

_____

_____

_____

Originator:_____

Prime Contractor's Corrective Action: Date:_____

_____

_____

_____

_____

Corrective Action Completed: ☐ Yes ☐ No

Safety Representative/designee:_____ Date:_____

FOLLOW UP

☐ Complete

☐ Incomplete

☐ 2nd Notice Sent:_____

☐ Completion Sign-off

Originator:_____ Date:_____

CC: Construction Manager

ATTACHMENT K
PRIME CONTRACTOR MONTHLY REPORT OF WORK

INJURY AND ILLNESS STATISTICS

_____Month _____ 19___

Name of Prime Contractor:_____

Name of Subcontractor: _____

Location: _____Date of Report _____/____/_____

Prepared by:
(Name, Title, and Company)

O Single Prime Contractor Report

O Prime Contractor's composite report; list names of subcontractors in Remarks and attach a copy of each subcontractor's single monthly report.

	Total for Month	Cumulative Total YTD
First Aid Cases	_____	_____
* OSHA Recordable Cases	_____	_____
* OSHA Lost Workday Cases	_____	_____
* Lost Workdays	_____	_____
Fatalities	_____	_____
Total Work Hours	_____	_____

Remarks: _____ (Check if continued on back of form)
Notes: If you are a subcontractor, please identify your prime contractor.

* As defined by OSHA

ATTACHMENT L
Page 1 of 2

SAFE PLAN OF ACTION (SPA)

1. Write the name of the work area and the job task in the blanks where indicated.
2. Conduct a walk-through survey of the work area. Plan and review the job task with all of the employees involved. On the left side of the form, write down each hazard possible in conducting the task. Consider ways to control/eliminate the hazards beyond the use of PPE.
3. On the right side of the form, put down what can be done to control/eliminate the hazard.
4. Use PPE checklist on the back of this form to review required protective equipment.
5. When completing the hazard assessment, include any hazards specific to location of work, whether created by work activity or previously existing.

Work Location _____Job Task _____

HAZARDS ASSESSMENT	SAFE PLAN

CREW/TEAM MEMBER SIGNATURES

_____ _____

_____ _____

_____ _____

_____ _____

Supervisor_____Date_____

ATTACHMENT L
Page 2 of 2
SAFE PLAN OF ACTION (SPA)

PPE CHECKLIST

Eye and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT		
Chipping, grinding machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening riveting, and sanding	Flying fragments, objects, large chips, particles sand, dirt, etc.	Spectacles with side protection, goggles, face shields. For severe exposure, use face shield
HEAT		
Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks.....	Face shields goggles, spectacles with side protection. For severe exposure use face shield
	Splash from molten metals.....	Face shields worn over goggles
	High temperature exposure.....	Screen face shields reflective face shields
CHEMICALS		
Acid and chemicals handling, degreasing plating	Splash.....	Goggles, eyecup and cover types. For every exposure use face shield.
	Irritating mists	Special-purpose goggles
DUST		
Woodworking buffing, general dusty conditions.	Nuisance dust.....	Goggles, eyecup and cover types.
LIGHT and/or RADIATION		
Welding: Electric arc	Optical radiation.....	Welding helmets or welding shields Typical shades 10-14.
Welding: Gas	Optical radiation.....	Welding goggles or welding face shield. Typical shades: gas welding 4-8 cutting 3-6 brazing 3-4
Cutting, Torch brazing, Torch soldering	Optical radiation.....	Spectacles or welding face-shield. Typical shades, 15-3
Glare	Poor vision.....	Spectacles with shaded or special-purpose lenses, as suitable.

ATTACHMENT M
SAFETY MEETING RECORD

SPALLATION NEUTRON SOURCE
SAFETY MEETING RECORD

Contractor _____ Contract # _____

Foreman _____ Date _____

Craft _____ Crew _____

Subject(s) (Briefly Describe) _____

Comments _____

Number of employees on crew _____

Number in attendance _____

Attendee Signatures _____

ATTACHMENT N

DAILY TRENCH/EXCAVATION PERMIT

DAILY TRENCH/EXCAVATION INSPECTION/PERMIT

Date: _____ ***Time:*** _____ ***Site Name:*** _____
Excavation Location _____

Site Evaluation Required for all Excavations
(Only the bold sections apply to excavations shallower than 4 feet)

_____ ***Surface encumbrances***
_____ ***Underground installations***
_____ Access and egress
_____ ***Exposure to vehicular traffic***
_____ Exposure to falling loads
_____ Hazardous atmospheres
_____ % Oxygen (O2)
_____ ***Warning system for mobile equipment***
_____ Protection from water accumulation
_____ ***Stability of adjacent structures***
_____ Employee protection - loose rock/soil
_____ Inspections
_____ Fall protection
_____ % Flammables (L.E.L.)

Note: Atmospheres in excavations greater than four feet shall be tested for oxygen content and flammable gas concentrations prior to entry of personnel. Emergency rescue equipment shall be readily available.

(Complete the following section for excavations greater than 4 feet in depth or where an employee is required to bodily enter the excavation.)

Soil Classification

Soil classification shall be made based on the results of at least one visual, and one manual test.

_____ Stable rock _____ Type A _____ Type B _____ Type C

Visual Tests
Inspect worksite for:
_____ Fissured ground
_____ Layered soil
_____ Previously disturbed earth
_____ Seepage
_____ Vibration
_____ Poor drainage

Manual Tests
Analyze soil for:
_____ Plasticity
_____ Dry strength
_____ Thumb penetration
_____ Pocket penetrometer
_____ Sherevane
_____ Drying test

Protective Support Systems

Sloping & Benching
_____ Stable rock: 90 degrees
_____ Type A: 53 degrees
_____ Type B: 45 degrees
_____ Type C: 34 degrees

Shoring & Shielding
_____ Timber or hydraulic
_____ Trench boxes, trench shields
_____ Design using tabulated data
_____ RPE design

Additional Comments or Information: _____

_____

_____

Inspection performed by: _____
Authorized Competent Person

Addendums

Open Pit Forced Ventilation Burn Procedure

The purpose of this procedure, as stated in the opening paragraphs is to assure compliance with Federal, State, and Local governing agency laws. In an attempt to maintain consistency with other procedures located at this Spallation Neutron Source Project, this procedure has been developed in a manner that mirrors previously tried and proven methods that have been approved for use by all principle parties located on the reservation.

I. PURPOSE

To efficiently and economically dispose of non-merchantable woody material when quick, low emission burns are required.

II. SCOPE

To establish a procedure for the proper method of open-pit forced-air controlled burning of woody materials for the purpose of land clearing on the SNS Construction Project

III. REFERENCES

Rules of Tennessee Department of Environment and Conservation Chapter 1200-3-4. Open Burning

Guide to Forestry Best Management Practices.

Tennessee Department of Agriculture, Division of Forestry

Operation and Maintenance of the Finn Twin Jet Blower.

Finn Corporation, Fairfield, Ohio

DOE-ORNL document Number UT-FOR-3.11

IV. MATERIALS. EQUIPMENT AND SUPPLIES

The equipment used in these operations may include but are not limited to

A. Bulldozer, (D-8)
B. Twinjet blower, Finn (or approved equal)
C. Front end loader
D. Pump tank, 200 gallon capacity on 3/4 ton 4x4 pickup
E. Hydro seeder, 3000 gallon capacity
F. Backpack pump, 5 gallon capacity
G. Fire rakes
H. Round point shovel
I. Seico fire line plow (or approved equal)
J. Construction flagging
K. Appropriate signage
L. Site map
M. Appropriate personnel protective equipment (hard hats, safety glasses, safety boots, etc.)

Terms used herein are defined below:

A. Agency - any federal, state, municipal, Construction Manager or SNS department determined to have a jurisdictional authority over the burn site. The CM will notify the ORNL Laboratory Shift Superintendent (574-6066) and the Oak Ridge Reservation Forest Manager (574-7446) prior to any operational burns. The ORR Forest Manager will subsequently make all proper agency notifications.

B. Operational burn - a fire conducted to dispose of unwanted woody material and performed under such conditions that fire size and intensity are no greater than that required to achieve its defined purpose. When the objective is to eliminate organic material or unwanted vegetation on the forest floor, this operation is sometimes referred to as a prescribed burn.

C. Fire Control Equipment - hand tools and machinery utilized in the conduct of uncontrolled burns and controlling woods fires, such as fire rakes, shovels, water pumps and dozers.

D. Fire Crew - that collection of individuals assigned to initiate, monitor and/or control the progress of fire. At a minimum, a power equipment operator and a second person are involved, but could include: supervisors, Power Equipment Operators, Ground Equipment Operators, laborers and truck drivers.

E. Hydro seeder - a vehicle originally intended to discharge a mixture of water, grass seed, fertilizer; and fiber mulch for the purpose of erosion control or re-vegetation. This vehicle is occasionally filled solely with water for the purpose of fire control, though it is not as versatile as a 4 wheel drive vehicle equipped with a pump tank in reaching remote sites.

F. Knotting - the construction of a brush pile in as compact a form as possible so as to attain the most efficient burn This is not practical for piles intended to be moved later.

G. Fire monitoring - surveillance of a controlled fire during its varying phases. The most intensive monitoring is maintained during the initial, most aggressive stages when the bulk of fuel is being consumed (typically during daylight hours). A smaller crew is used for monitoring afterwards to ensure a more complete consumption of fuels (typically in the afternoon or evening hours). When the fire has diminished into mostly coals, periodic checks by site protection are arranged (typically the overnight hours).

H. Non-merchantable woody material any product which has not lost its basic character as wood, such as logging slash, bark, brush, limbs, forest litter, dead and down trees and tree tops and for which an economic value cannot be readily realized.

I. Open-pit forced-air controlled burning - the method of piling brush into an open pit or trench and blowing jets of air into it in such a way as to promote a rapid arid nearly smoke-free combustion of materials.

J. Pump tank, 200 gallon - a gasoline-powered water pump attached atop a fiberglass reservoir that has been installed into the bed of a 4wheel drive pickup truck and capable of being driven to remote fire sites.

K. Setbacks - the distance away from a feature or structure such as a right-of-way, building, or tree line from which a controlled fire must be limited.

L. Stream side Management Zones (SMZ) - a strip of land adjacent to any water of the state where soils, organic debris, and live vegetation are managed to protect water quality from sediment, excessive temperature, logging debris, pesticides, trash and pollutants. Generally, the width of the strip varies with the slope.

M. Twin Jet Blower - an 80 HP diesel-powered fan with an extendible 40" diameter metal tube projecting away from the unit up to 42 feet. The tube is fabricated with two sets of vents which constrict the air stream blown through the tube at approximately 40 mph into an adjacent trench within which woody debris has been ignited. The blower is a self contained unit towed to the burn site.

V. RESPONSIBILITIES

It shall be the responsibility of SNS Construction Manager (Knight Jacobs Joint Venture) to plan in association with the appropriate area managers, prepare, and implement controlled open-pit air burns on the SNS Project as herein described.

A. Sub-Contract Supervisor/Manager

Supervisor ensures that environmental, safety and health requirements are satisfied for personnel, equipment, and facilities under his/her direct control and ensures that employees are instructed and trained in job-related environmental, safety, and health policies, procedures, practices, and conditions. Supervisor will process Safety and Health Permits where potential hazards dictate reviews and issuance of Safety and Health Permits are required.

B. Sub-Contract Employee/Individual Worker

Employee complies with environmental, safety, and health standards, regulations, rules and instructions. Promptly reports and/or responds to emergencies, environmental, safety, or health related occurrences and unsafe practices or conditions observed.

VI. PROCEDURE

A. The subcontractor shall submit to the Construction Manager, an open pit forced ventilation burn procedure for approval prior to the commencement of any of the construction of the burn pit and/or the burn of any debris located on the SNS construction site. As a minimum the notification shall contain the following information.

1. Location of burn site. The subcontractor shall consider the following when proposing a burn site:

- Burns should be conducted on the highest and driest ground possible with as stable a soil as possible.

- Position the trench, when practical, so that during burning operations the blower will discharge in the same general direction as the ground-level wind.
- Maintain adequate setbacks ~ piled wood fuel, structures, utilities and right-of-ways and tree lines as deemed appropriate by the ORR Forester.
- Avoid drainages for locating trenches and brush piles whenever possible.
- Avoid burning under power lines or on underground utilities.

*****Note*** No-One shall bodily enter the trench unless all requirements set forth in 29 CFR 1926.650 through .652 have been met.**

2. Description of burn.
3. Duration of burn (dates and times).
4. Call back phone number.
   a. The CM will contact the SNS safety contact who will in turn complete any other required notifications.
   b. The subcontractor shall obtain an excavation permit and any other permits or information that are necessary and have not already been prepared.

Minimal Requirements

At a minimum the proposed burn plan shall include the following elements.

1. Materials to be burned should be raked into a position near the trench in such a way as to facilitate filling the trench with woody fuel and minimize including soil. Avoid 'knotting" the brush prior to loading into the pit.
2. The subcontractor shall construct the trench with a bulldozer/front end loader using the following guidelines:
   a. Trench should be 8-1/2 feet deep and 12 - 15 feet wide.
   b. Trench length can vary from 20 to 40 feet, depending on the site and the of blower vent sections used on the job.
   c. The end of the trench closest to the blower engine should be blocked off. The opposite end of the trench should be back filled.
3. Stockpile soil dug from trench at its ends to be used to refill trench after burn.
4. Flag off the trench with construction type flagging and post any needed signage.
5. Locate Twin Jet Blower adjacent to trench and adjust such that the lower jet vent will force air down along the near trench wall and the upper jet vent will force air diagonally across the top of the trench causing the air to hit about 18" - 24" below the top of the opposite pit wall.
6. Create a mound of soil between the blower tires and the trench for the protection.
7. The supporting leg of the blower vent tubes should be anchored or secured to prevent slipping into the trench.
8. Top off fuel tank of blower unit prior to igniting fire.
9. Commence burn as early in day as possible in order to take advantage of the optimum burn period.

10. Initiate trench loading and woody material combustion.
    a. Load new brush into the pit side farthest from the blower.
    b. Load pit half full with fairly dry small woody material.
    c. Material should be placed in the pit neatly without excessively protruding ends.
    d. Apply sufficient diesel fuel needed to initiate burning, putting the majority on the center of the pile nearest the blower.
    e. Ignite the brush, allowing the fire to become established before starting blower.
    f. When the fire has grown in intensity, start the blower and gradually bring it to optimum speed.
    g. Once the fire has reached full intensity, reloading of the pit can proceed at intervals as determined by the burn rate.
    h. Avoid overfilling the pit and allowing material to project above the blower when possible.
11. During blower operation, perform daily and weekly maintenance on blower as recommended by operation manual.
12. Maintain a burn crew, dozer or water for fire fighting in 200 gallon pump tank (or 3000 gallon hydroseeder truck, if available) at site during the most aggressive phase of burning. The most intensive monitoring is maintained during the initial, most aggressive stages when the bulk of fuel is being consumed (typically during daylight hours). A smaller crew is used for monitoring afterwards to ensure a more complete consumption of fuels (typically in the afternoon or evening hours). When the fire has diminished into mostly coals, periodic checks by site protection are arranged (typically the overnight hours).
13. Fill trench with stockpiled soil after burn is complete (removal of incompletely consumed stumps may be needed).
14. In the event that wild-land fire control assistance is needed, the subcontractor will immediately notify the CM, the ORNL LSS (574-6606), and the ORR Forest Manager (574-7446) for assistance. The ORR Forest Manager will serve as the primary backup for wild-land fire control.